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No. 150

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I. GENERAL INFORMATION

ORGANIZATION, FINANCE OF STATE FARMS REVIEWED

Beijing YONG JINGJI BANFA GUANLI NONGKEN QIYE [USE ECONOMIC MEASURES TO MANAGE STATE FARMS AND RECLAMATION ENTERPRISES] in Chinese Jul 80 pp 1, 2, 10, 11, 30, 31, 36, 53, 88, 89, 96, 97

[Article: "A Look at China's State Farms--Their Organization and Finance"]

[Excerpts] Luzai Farm in Hebei Province

Our farm was established in 1950. It now has a population of 32,000 (12,000 belong to the state operated section, there are over 5,100 permanent workers) and 117,000 mu of cultivated land (49,200 mu belong to the state operated section). Over the past 29 years, the farm has provided to the state a cumulative total of over 309 million jin of commercial food grains (over 215 million jin were provided by the state operated section), and over 85 million jin of milk. The farm also raised over 74,000 head of superior breed hogs, exported 26,000 tons of rice, and accumulated capital amounting to over 24 million yuan for the state. The farm paid back state investment and also submitted over 9 million yuan of profits.

The economic achievements of the past 29 years of the state operated section: As of the end of 1978, there were 22 years of profit and 7 years of deficit. In the beginning founding period (1950 to 1952), a deficit of 980,000 yuan was incurred during the 3 years. From 1966 to 1969, because of the interference and sabotage by Lin Biao and the "gang of four", a deficit of 1.8 million yuan was incurred in 4 years. In 1973 we conscientiously summarized the positive and the negative experiences, strengthened business management and economic accounting, and production and business visibly improved. Per mu yield of food grains increased to 602 jin. From 1974 to 1978, we "surpassed the level of the Changjiang" continuously for 5 years and profits gradually improved. In 1978, the several major indicators of the total yield of food grains, unit yield, total yield of milk, total productive value of industrial and sideline industries and profits all surpassed the best levels of the past.

In 1979, it was estimated that the several major indicators of total yield of food grains, unit yield, total yield of milk and profits would again create new records. Total yield of food grains reached 68 million jin, surpassing the planned goal by 25.9 percent, an increase of 8.7 percent over the previous year. Per mu yield of cultivated land was 910 jin, an increase of 2.7 percent over the previous year. The farm, the plant, the team and each profession realized profit. The entire farm's profit goal is forecast at 5.1 million yuan and the farm is striving towards 5.5 million yuan.

Shouxihu Farm in Anhui Province

Our farm is the largest farm in the region along the Hui River in Anhui Province. It now has 57,000 mu of cultivated land and 2,916 workers. It owns 111 tractors and harvesters, 24 vehicles for farm use, and it plants mainly wheat and soybeans. Since its founding in 1952, it has produced low yields and suffered deficits for long periods. Up to 1977, its net deficit was over 7.67 million yuan. In 1977 alone, a loss of 1.128 million was incurred. After crushing the "gang of four", production revived and developed. In 1978, bumper harvests were obtained even under severe drought. Total yield of food grains reached over 20.76 million jin, an increase of 62.4 percent over 1977. This not only turned the long period of deficits around but a profit of 510,000 yuan was realized, and the farm received an award and red flag as an advanced collective by the national farming and reclamation system. In 1979, the 56,000 mu of wheat again realized bumper harvests, total yield reached 24.52 million jin, the planned annual production of 23 million jin of food grains was completed and surpassed in one season. Per mu yield of wheat averaged 435 jin, an increase of 25 percent over the previous year. Commercial food grains of 21 million jin harvested from the summer crop were submitted and sold to the state, over 7 million jin more than the total annual amount submitted and sold to the state in the previous year. Profits for the first half of the year amounted to 2.1 million yuan, over threefold the annual profits of the previous year. Two years ago, two major advances were made. The summer harvest of one season "surpassed the annual goal of the entire year" (in yield, procurement by the state and profit). Increases in yield, in profits and in contribution were all realized.

We were able to change the situation of the farm within 2 years and change low yields and losses to increased yields and increased profits mainly because we tightly grasped improvement of business management and changed the productive conditions, improved the style of leadership and carried out work according to economic order.

Survey of How the Wudang Dairy Cow Farm of Guiyang City Turned Losses Around and Increased Profits

The Wudang Dairy Cow Farm of Guiyang City utilized economic means to manage the economy, and mobilized the workers' enthusiasm for socialist production. In 1979, the entire farm completed its annual production plan with surplus 3 months earlier on an overall basis and removed the curse of continuous losses for the past 10 years. The main task of the farm's production plan for 1979 was to produce 2.95 million jin of milk, 18 million jin of green feed, including a planned deficit of 190,000 yuan in contracting work. At the end of September, 3.2 million jin of milk had been produced, surpassing the annual plan by 2.7 percent, an increase of 62 percent over that of the same period in the previous year. The amount of green feed produced was 22.2 million jin, surpassing the annual plan by 22 percent, an increase of 81.7 percent over the same period in the previous year. Income from fermentation of wine, transportation, local materials for basic construction and construction was expanded. Ice making, powdered milk production and fishery production from cultivation of fish were added. Income from industrial and sideline industries reached over 750,000 yuan, constituting 42 percent of the total income of the entire farm, an increase of over onefold over the same period in the previous year. Total expenditure was 3 percent less than planned, and profits reached 330,000 yuan.

Wudang Dairy Cow Farm is 8 kilometers outside of Guiyang City. The entire farm has over 50,000 mu of land, including 18,000 mu of grazing grassland, 3,000 mu of cultivated land, and 1067 workers. The farm has seven subsidiary accounting units and 857 head of dairy cattle, with 494 head producing milk.

During the period of rampage by Lin Biao and the "gang of four", Wudang Dairy Cow Farm suffered serious sabotage, the business management system, the system of raising and managing dairy cows and the milking operation and procedure were all abolished as being restrictions "to control, to suppress and to check." A good socialist livestock farm was messed up. Daily production of milk dropped to 900 jin, loss was very serious. In 1974, the deficit reached 534,000 yuan. After crushing the "gang of four", a part of the business management system was revived and established. Production rose and losses decreased. In 1978, each sector of production reached the best levels of the past, losses were reduced from the 435,000 yuan incurred in 1977 to 275,000 yuan, a drop of 45 percent.

In 1979, encouraged by the spirit of the Third Plenum of the 11th Party Congress, the party committee of the farm proposed "to engage in cultivation of dairy cattle and the production of milk as the main tasks, take feed as the foundation, develop diversification and turn losses into profits" in time and set the above as the central tasks in shifting the emphasis of work of the entire farm. In addition, the state required the state run farm to implement the system of having cadres take charge of the finances through "independent accounting, bearing loss and profit by the farm itself, retaining profits for private use, and not subsidizing extra losses." All of these have promoted the leadership of the farm to involve itself deeply in production, to develop democracy, to respect objective rules and to use economic means to improve business management.

Yangliuqing Farm of Tianjin City

Our farm now has 1,520 staff members and workers, 3,660 mu of cultivated land, including 900 mu of vegetables, 1,695 mu of fields for food grain crops, 1,065 mu of land for green feed crops, 493 head of milk cows, and 1,773 head of hogs. It is a farming and livestock farm.

The whole farm provided over 1.8 million jin of food grains, 3.18 million jin of milk, 220,000 jin of live hogs, 9 million jin of vegetables, 2.65 million jin of powdered cornstarch and some processed industrial and sideline products to the state in 1979. The entire farm's total value of agricultural, livestock, sideline production in 1979 was 3.2 million yuan, an increase of 23 percent over the previous year. Each agricultural worker produced over 12,400 jin of food grains, and 30,000 jin of vegetables. Each livestock worker produced over 24,200 jin of milk and 4,171 jin of pork. It is estimated that in 1979, a profit of 550,000 yuan can be realized, a surplus of 96.4 percent over the plan, and an increase of more than twofold over the actual profit of the previous year. The realization of these achievements is mainly due to conscientious implementation of the spirit of the Third Plenum of the 11th Party Congress, implementation of the various guidelines and policies of the party, and strengthening of business management, therefore, the enthusiasm of the cadres and workers to carry out production well was mobilized.

Wusong County State Run Jinseng Farm No 1 of Jilin Province

Our farm is located in the Changbaishan Forest region in Jilin Province. It now has 750 workers managing 220,000 square meters of jinseng and 700 mu of farmland. For over 30 years, we have conscientiously implemented the guideline of "engaging mainly in one vocation and diversification", worked according to economic rules, insisted on thriftiness in managing the farm, strengthened business and operational management, and promoted the development of the production of jinseng. Since the founding of the farm, it has produced a total of 2.44 million jin of aquatic jinseng, exported 450,000 jin of red jinseng, submitted a profit of 17.24 million yuan and 4.1988 million yuan in taxes to the state, becoming a joint agricultural, industrial and sideline enterprise involved mainly in the production of jinseng with a continuous profit of over 30 years.

In 1979, a good harvest was realized in the production of jinseng under conditions of low temperature, less sunshine and more rain. Some 141,000 jin of aquatic jinseng was produced, an average yield of 2.73 jin per square meter, an increase of 1.1 percent over the planned yield. The quality of jinseng was better than that of past years, the yields of first and second grade jinseng reached the best level of the past, constituting over 60 percent. The estimated profit in 1979 is 1.2 million yuan.

In reviewing the path of the past 30 years of our farm, we recognize that to realize continuous profits year after year, we must work according to economic rules, insist on thriftiness in managing the farm, implement planned management, production management, financial management, labor management and materials management well. While doing the work of jinseng production well, sources of wealth must be opened up widely to increase income and to elevate the level of cumulative income.

Administrative Bureau of the Dongxihu Farm in Hubei Province

The Dongxihu Reclamation Area of Wuhan City began reclamation and encirclement of waste land in 1957. In 1958, a farm was built for production. Now, there are 11 farms, one milk producing company, four agricultural science institutes, 58 medium and small factories with a total area of 600,000 mu, including 360,000 mu of cultivated land, 27,000 mu of water surface for cultivating fish (including 5,100 mu of ponds for fine cultivation of fish), 16,000 mu of fruit orchards, 13,000 mu of tea plantations, a total population of 170,000, and 80,000 workers. It is a state run farm colony mainly producing supplementary foods in the suburbs of Wuhan City.

During the 21 years since the establishment of the farm, there were 9 years of profit and 12 years of deficit. Especially from 1967 to 1975, because of the interference and sabotage by the extreme leftist line of Lin Biao and the "gang of four", a total loss of 33.82 million yuan during the 9 consecutive years was incurred.

After crushing the "gang of four", the broad masses of workers and cadres linked their work with the actual situation of the farms, severely criticized the leftist line, summarized the positive and negative experience and lessons, strengthened business management, and the situation of the farms gradually changed. In 1976, the situation of low yields and losses was changed, food grain production and cotton production both reached the guidelines, and a profit of 1.07 million yuan was realized. In 1977, a profit of 4.9 million yuan was realized. In 1978, the total productive value and net profit of food grains, cotton, oil, hogs, fish, and vegetables all surpassed the best levels of the past even with 100 days of severe drought and insufficient energy resources. Per mu yield of food grains was 869 jin, per mu yield of cotton was 137 jin, net profit was over 9.3 million yuan.

In 1979, encouraged by the spirit of the Third Plenum, the productive trends were even better. Total yield of summer grains increased from the 9.88 million jin in 1978 to 20.34 million jin, an increase of more than onefold. The yield of rapeseeds increased from the 1.65 million jin in 1978 to 2.35 jin, an increase of 40 percent. Per mu yield of early rice increased from the 554 jin in 1978 to 601 jin. Per mu yield of the 66,000 mu of cotton fields was 150 jin. Increases in the yield of milk, hogs, fish, vegetables and fruits have all increased by a relatively large degree.

The production level of the farm has risen year after year. The most basic reason is that the Party Central Committee led by Chairman Hua crushed the "gang of four" in one blow, stability and unit emerged in politics, and the party's guidelines and policies were conscientiously implemented thoroughly. At the same time, the farm grasped operational management and exerted efforts to improve the level of business management. This is also one reason that production has risen year after year.

The 29th Corp Farm of Xinjiang

Our farm now has nearly 130,000 mu of cultivated land. Equal emphasis is placed on food grains and cotton and the farm is also engaged in diversification. There are over 8,100 staff members and workers and a population of over 17,000. After crushing the "gang of four", our corp insisted on the socialist principle of paying each according to his work, reformed the wage system, strengthened economic accounting, established and perfected the business management method, and these efforts actively served to develop production. In 1976, losses were changed to profits, in 1977, a profit of 1.29 million yuan was realized, in 1978, a profit of 1.95 million yuan was realized, and preliminary estimates for 1979 shows a profit of 4 million yuan.

1. Insistance on the socialist principle of paying each according to his work. Beginning in 1975, we divided wages into fixed wages and free wages. Wages of workers change according to the size of their contributions. The greater the contribution, the more income for the individual. The portion of fixed wages is equivalent to 80 percent of personal wages. It is paid according to attendance for living expenses of workers and it belongs to guaranteed wages. The free portion includes 20 percent of the personal wages and also includes monetary rewards of the individual worker given according to a definite proportion of distributed profits beyond the planned profits (same for decreases and losses)

among the state, the production unit and the individual worker. It belongs to the responsibility wages. Monetary rewards are provided as supplement in the form of hourly wages and is closely tied to profits over planned profits. It has become the link among the benefits of the state, the productive unit and the worker, and it has become the stimulant of enterprises to complete state plans and to complete state plans with surplus.

When the state plans for major products--plans for food grains and profit plans (or deficit plans)--have been completed with a surplus, the free portion equivalent to 20 percent of the wages of the worker is paid and for every average 1 to 100 yuan of profit beyond the plans produced by each worker, a reward of 40 percent is paid, for surplus of 101 to 200 yuan, a reward of 30 percent is paid, for surplus of 201 yuan or more, a reward of 20 percent is paid, cumulatively calculated. Deficit units are also awarded 20 percent from the deficit. These monetary rewards are distributed to the workers by the company team according to work points. Units that have not completed the planned profit also receive monetary distribution deducted from the total wage according to a definite proportion (not over the 20 percent of free wages) and based on work points. The portion of fixed wages constituting 80 percent of the total wages given to each individual worker based on attendance will not be deducted further even if the value of the work points of the individual worker is less than 80 percent of the total wages. In face of natural disasters which human efforts are unable to overcome, although efforts have been exerted but the yield has still dropped, the state will consider the situation and provide subsidies not surpassing the original wages or the workers. All planned profits are submitted to the state. Surplus profits over the planned profits are proportionally distributed to the state and the production unit, 60 percent for the state and 80 percent for the production unit. The portion distributed to the production units is divided in half, one half to be used as development funds and the other half to be used for welfare benefits. Jobs such as digging, laying, civil engineering work, repairs which are labor intensive and which show visible results of labor, visible amount of labor and visible quality of labor are paid by pieces. We also used rewards to readjust the differences between the pay for different types of jobs. The principle of readjustment is that the ratio of rewards for farm work is higher than for industry and commerce. When the planned profit has been surpassed, 20 percent of the free wages of the individual worker are fully subsidized and the reward for the surplus profit over the planned profit is given according to the sum of the fixed quota of work days and the number of days of attendance (the number of days of attendance established by regulation) without further evaluation to correct the mixture of "political wages" (political performance) and "experience wages" (experience) during the evaluation of work and assignment of work points. This is a comprehensive year-end reward and is the major form of rewards.

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PRC TO SET UP NATIONAL TOBACCO CORPORATION

OW131315 Beijing XINHUA in English 1208 GMT 13 Jun 81

[Text] Beijing, 13 Jun (XINHUA)--China is to establish a national tobacco corporation to take charge of tobacco production and purchase and cigarette making and distribution, according to a State Council decision made public today.

The Beijing-based corporation will have subdivisions in provinces, municipalities and autonomous regions throughout the country.

The corporation will either close down or convert to other types of production many of the small local cigarette factories that have sprung up in recent years. Some of them are not adequately equipped and their products are of poor quality, but they consume a lot of tobacco that should go to bigger and better-equipped plants. State-owned factories will be upgraded so as to boost cigarette output.

The China National Tobacco Corporation will increase the output of filter-tipped cigarettes and cigarettes packed in aluminum foil.

It is expected that China's output of cigarettes will reach 20 million cases or 1,000 billion cigarettes by 1985. The 1980 output was 15.2 million cases or 760 billion cigarettes.

China now has more than 80 state-owned cigarette factories. Chinese cigarette brands number about 1,000, mostly regional. Around 15 brands are exported.

CSO: 4020/208

IMPROVING PADDY RICE YIELD IN EIGHT SOUTHERN PROVINCES SOUGHT

Beijing RENMIN RIBAO in Chinese 21 May 81 p 4

[Article by Diao Chaoquan [0431 2347 6898] of the Hunan Academy of Agricultural Sciences: "Further Improve the Yield of Paddy Rice of the Eight Southern Provinces"]

[Text] Recently, the State Scientific and Technological Commission held a discussion meeting for some of the paddy rice experts of the eight southern provinces [Guangdong, Guangxi, Hunan, Hubei, Jiangsu, Zhejiang, Jiangxi, Sichuan] to study the problem of further improving the paddy rice yield. Everyone pointed out that over the past 30 years, the annual yield of food grains of the eight southern provinces increased 1.85 times, average annual increase was 6.68 billion jin. The production of food grains of the eight provinces is mainly rice grains. The large scale increase in paddy rice production is inseparable from the popularization and application of various techniques and measures of agricultural science. For example, changing xian rice to geng rice, tall stemmed to short stemmed varieties, ordinary rice to hybrid rice, increasing the area of multiple plantings, improving techniques of cultivation, changing the conditions of production (including basic farmland reconstruction, increases of materials for farm use such as chemical fertilizers and farm chemicals), etc. have all created conditions for increasing the yeidl of paddy rice.

To further improve the paddy rice yield, the experts made the following suggestions regarding scientific techniques in agriculture:

1. The Crop Structure and the Planting System Must Be Actively and Stably Readjusted

The planting system should be a combination of many different forms, not just a single form. Now, when food grains in the south are mentioned, we automatically mean paddy rice, but actually soybeans and corn are also food grain crops. In Hunan, rice grains are also used to feed hogs. Five to six jin of rice grains are required to produce one jin of flesh, and in one year, several billion jin are consumed. If beans and corn can be used to make mixed food, three jin of feed can produce one jin of flesh. In many rice regions in the south, double season rice is the main planting system. But there is a fairly large area where the yields of double season rice are not high. For example, in Hunan, there are about 6 million mu where the yield of double season rice does not reach 800 jin. Actually, planting one season of rice in addition to other food grain crops can also produce a harvest of 700 to 800 jin. Some planting systems have not fully utilized the natural conditions of the locality and have not developed the superiority of the locality, therefore the results are not good. Some localities put too much emphasis on the multiple planting index, neglect nurturing of land fertility, thus stable and high yields cannot be realized. Also, the labor force is tied down to the double season and triple season crops and is too busy, thus diversification cannot develop. To develop agricultural production, this type of planting system must be readjusted.

II. The Results of Scientific Research in Agriculture Must Be Comprehensively Utilized and Efforts Should Be Exerted to Increase Unit Yield

The common characteristic of the eight provinces is that there is not much potential left for enlarging the area. Some regions cannot expand further and should even return some land to the lakes and return some cultivated land to the forests and to livestock production. But the potential of the eight provinces to increase unit yield is still very great, the emphasis in developing agricultural production should be placed on increasing the unit area yield. Now, we possess the techniques to change part of the low yielding fields and at the same time, some scientific and technical forces can fully increase unit yield by comprehensively utilizing the presently available scientific and technical achievements.

III. Buildup of Seeds Must Be Strengthened

Seeds, production conditions and cultivation techniques are the "three major pillars" to increase unit yield. At present, the problems existing in work involved with seeds are: one, impurity, the work of purification and reviving healthy seeds cannot catch up; two, combination of varieties is inappropriate, and if varieties are coupled well, a lot of loss can be prevented.

IV. Buildup of Fertilizers

Generally speaking, at present, there are not enough organic and inorganic fertilizers. In particular, the amount of organic fertilizers has decreased and the amount of nitrogenous fertilizers in inorganic fertilizers is increasing. There are more nitrogenous fertilizers, less phosphorous and potassium fertilizers, and the conflict is outstanding. In the Suzhou area in the 1960's, the ratio of inorganic fertilizers to organic fertilizers was 4:6, now it is 6:4. Because the ratios of various fertilizers have become imbalanced, the results of increased yields due to nitrogenous fertilizers have become less effective. In the past, each jin of nitrogenous fertilizer could produce an increased yield of 5 to 6 jin of rice grains. Now, the increase in yield is less than one jin. The ratio among nitrogen, phosphorus and potassium in the world is 1:0.5:0.5, it is 1:0.5:1 in Japan, and it is out of proportion in our nation.

V. Multidisciplinary Sciences Must Be Organized and Experimental and Demonstration Points Should Be Managed Well

To mobilize the enthusiasm of the various sectors, the province's first administrative level must organize a joint agency for experimentation, demonstration and popularization to organize scientific research, education and popularization together and to carry out research frequently. Where this cannot be done right now, such meetings can be organized and held to study some important questions. Now, each province has a multidisciplinary experimental and demonstration point. Such points must benefit the triple alliance of education, scientific research and popularization, benefit improvement of each branch of science, and at the same time, attention must be paid to training local scientific and technical teams in agriculture.

A popularization system must be established and perfected. In the past, it was generally believed popularization was not a science, actually popularization is management science. Persons involved in popularization work cannot simply be employed without improving their conditions. At the same time, their life and salary must be of concern.

In managing scientific research, key subjects must be grasped well, each scientific discipline must be organized to overcome difficulties. The subjects must be relatively stable and cannot be changed every year. Hunan province not only included the reform of the planting system as the key subject, it also fixed key subjects for 6 years without change. Experts from other provinces are very interested in this.

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CSO: 4007/407

FURTHER DEVELOPING, UTILIZING SORGHUM STRESSED

Beijing RENMIN RIBAO in Chinese 21 May 81 p 4

[Article by Niu Tiantang [3662 1131 1016] of the Sorghum Institute of the Shanxi Academy of Agriucltural Sciences and Kuang Shenshan [6782 4164 0005] of the Sorghum Institute of the Henan Academy of Agricultural Sciences: "Emphasis Must Be Placed On Developing Sorghum Production"]

[Text] The planting area of sorghum in our nation has gradually decreased since 1975. Last year, it was 47 million mu. Now, the people in the sorghum producing regions can hardly find any sorghum to eat, and the masses have complained a lot. There is less sorghum and there are less stalks. The farm villages do not have any stalks for roofs in building houses. In planting vegetables windbreakers are lacking. There is a lack of fuel for cooking and raw materials for weaving. The prices of sorghum stalks have risen as a result, even higher than the price of sorghum. There is less food for livestock. Some people have been forced to use corn and wheat to replace sorghum as food. A reduced yield of sorghum has also caused a shortage of raw materials for the light industries. Many wineries especially of famous wines lack raw materials. Production is extremely abnormal.

The main reason that the planting area of sorghum has decreased is blind command by the leadership and changing policies. At the beginning of the 1970's, sorghum was praised and it was propagated everywhere without regard to the conditions. At the end of the 1970's, the arguments reversed themselves saying the yield of sorghum was not high, the quality was not good, and even the food grains department discounted the purchase price of sorghum. At some places, one jin of sorghum was counted only as 7 liang. Some other people unilaterally believed that as the living conditions improved, fewer people ate sorghum, and thus the planting area of sorghum decreased. With sorghum itself there were also some problems. In particular, the hybrid sorghum cultivated during the beginning period of the 1960's did not taste good. But now improvements have been made, and a batch of superior quality sorghum has been popularized and has been welcomed by the masses. In addition, in propaganda, unilateral emphasis was placed on flour and rice and wheat, neglecting autumn food grains. In autumn food grains, corn was also unilaterally propagandized, neglecting other autumn food grains. This is also one reason for the reduced yield of sorghum.

To increase the yield of sorghum, we suggest:

1. Concerned leading agricultural departments, especially seed companies, must strengthen the work in experiment, demonstration, propagation and popularization of presently available and newly introduced superior quality sorghum.

2. The distribution of crops must be readjusted. Dryland, alkaline land and other land unsuitable for planting wheat and corn should be used to plant millet and sorghum.

3. The cultivation techniques of sorghum should be improved. Sorghum is resistant to drought, resistant to waterlogging, resistant to salinity, tolerant to infertility, easy to cultivate and conserves investment. With the same yield of sorghum and corn, the investment in sorghum per mu is less by 9 yuan renminbi. If good land is used, if better cultivation conditions are provided, higher yields can be realized. At many places, the per mu yield of sorghum reaches over 400 jin.

4. Comprehensive utilization of sorghum must be developed. Our nation already has our own sugar sorghum variety. The sugar content in the stems and stalks approaches that in sugar cane, and they can be used to make sugar and syrup. Each mu of stems and stalks of sugar sorghum can produce 400 to 700 jin of syrup. Syrup can replace edible sugar, be used for confectioneries, and for fermenting wine. One jin of syrup can ferment one jin of wine. The residues can be used to make vinegar, the dregs can be used to make paper or feed. One mu of sugar sorghum can produce a harvest of 400 to 500 jin of sorghum, and the value of comprehensive utilization can reach 300 to 500 yuan. Planting sugar sorghum can conserve consumption of food grains greatly and reduce imports of edible sugar.

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CSO: 4007/407

MEASURES TO DEVELOP MILLET PRODUCTION GIVEN

Beijing RENMIN RIBAO in Chinese 21 May 81 p 4

[Article by Shi Suoda [0670 6956 6671] of the Scientific Research Department of the Chinese Academy of Agricultural Sciences: "On the Problem of Developing the Production of Millet in Our Nation's Northern Plateau"]

[Text] Our nation's northern plateau region has a cold and cool climate, the frostless period is short, annual rainfall is about 400 millimeters, mostly concentrated in July, August and September. Throughout the years, the sowing area of millet has always been over 20 million mu in the region.

Over the past decade and more, because of unilateral emphasis on high yielding crops and blind expansion of planting corn, the development of millet production in the region has been slow, the yield has been low and unstable, as low as a per mu yield of only 30 to 40 jin, seriously affecting the livelihood of the local people.

Facing the problems that exist in millet production in the region, we invited concerned experts and technical personnel to a discussion meeting and proposed the following suggestions:

1. The work to propagandize and to popularize the traditional experience of cultivation and preservation of moisture must be strengthened. For example, the drought resistance techniques of tilling in autumn to preserve autumn moisture and store autumn rain water for use in spring, raking and harrowing in time after tilling, raking and compacting in winter and spring to preserve moisture, compacting before and after sowing to bring out the moisture and sowing in icy conditions, deep planting and shallow burying, hoeing when dry and planting when wet to skillfully utilize bottom moisture. If these are grasped well, we are confident that an increase of several dozen jin of millet per mu can be realized.

2. The exploiting method of production of planting widely but harvesting less and planting without nurturing the land must be changed to macrocosmic agricultural production combining agriculture, forestry and livestock production, combining utilization and nurturing of the land, and banking fertility of the land. Millet fields are mostly distributed in mounds, thin ridges and hilly mountain land, the soil is infertile, the content of organic matter is less than 1 percent. Some far away "fields that depend on the heavens" and "picture hanging land" (referring to slopes of over 25 degrees) produce only 30 to 40 jin per mu in ordinary years. It

is suggested that these pieces of "land that depends on the heavens" and "picture hanging land" be returned to the forests or returned for livestock production, and forces should be concentrated to manage well the millet fields with better productive conditions.

3. The work in prevention and control of diseases and insect pests must be conscientiously done well. In recent years, the damage by diseases and insect pests has increased visibly. According to incomplete statistics, our nation's northern plateau region suffers a loss of no less than 200 million to 300 million jin of food grains each year as a result of diseases and insect pests. At present, the main diseases and insects that damage millet are black smut disease, albinism, borer and chaetocnema hortensis. There has been a set of effective methods of prevention and control of these diseases and insect pests in the past, such as seed selection in the fields, seed selection by washing with water, drying seeds and using internal medicines mixed with the seeds to prevent and control black smut disease, selective use of disease resistant varieties in rotation cropping, removing white heads and such methods to prevent and control albinism, using 666 pellets to prevent and control borers, using 1 percent 666 powder to prevent and control the chaetocnema hortensis during the seedling period. Each locality should emphasize such work.

4. Appropriately dense planting and strengthening field management. Millet production in the northern plateau region is not refined. With the addition of damage by diseases and insects, broken strips and missing seedlings are serious. The amount of seedlings remaining in each mu is too sparse. If 1 to 2 percent of seedlings more can be left in each mu on the presently available basis, generally each mu can produce an increased harvest of 10 jin of millet.

5. Active propagation of superior varieties. Besides doing well the work of purification and reviving the presently used varieties, superior varieties should be actively popularized, such as Yangu No 2, No 5, Yuhuanggu No 1, Zaogu No 4, No 6, Jingu No 2, No 9, No 10, Xuannong No 7, Chengnong No 2, Jigu No 3, Yaojin No 4 and Zhangu No 1. Each locality should test plant these varieties and popularize them by suiting measures to local circumstances and at the same time attention must be paid to select and use early maturing varieties to prevent damage by early frost.

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BRIEFS

HUANGHE FLOOD PREVENTION--Zhengzhou, 11 Jun (XINHUA)--The Huanghe flood prevention command recently held in Zhengzhou, Henan, a 1981 work conference on flood prevention in Shanxi, Shaanxi, Shandong and Henan provinces, calling on all localities to enhance vigilance and do a good job in making preparations for flood prevention. According to scientists of the water conservancy department, past experiences have proved that a serious flood always comes after a long period of drought. As the Huanghe River has suffered drought for 12 consecutive years since 1969, there is greater possibility of a serious flood than before. On the basis of the hydrometeorological influences of sunspot activities and the solar eclipse, some scientists predict that there may be a serious flood in the near future. The CCP Central Committee and the State Council attach great importance to flood prevention of the Huanghe River and the State Council recently appropriated funds to accelerate completion of flood prevention projects on the lower reach of the river. [Beijing XINHUA Domestic Service in Chinese 0046 GMT 11 Jun 81 OW]

FRESHWATER FISH BREEDING--Beijing, 16 Jun (XINHUA)--In the past 2 years China has scored outstanding results in breeding freshwater fish. In 1980 the total catch from ponds throughout the country was over 620,000 dun, or 68 percent of the total freshwater fish production. However, production has not increased in the past 2 years owing to the failure to make good use of freshwater surfaces for fish breeding. [OW170517 Beijing XINHUA Domestic Service in Chinese 0159 GMT 16 Jun 81]

PORK PURCHASE INCREASE--Beijing, 16 Jun (XINHUA)--According to statistics of the China General Food Company, in the first 5 months of this year the state purchased more than 47.60 million head of live pigs and sold more than 48.20 million head, setting an all-time-high record over the same periods of previous years. Over 95 percent of the pigs purchased by the state were raised by peasant families. Chinese peasants have been enthusiastic about breeding pigs in the past few years because the state has raised the purchasing price for live pigs. Last year, the per-capita consumption of pork in China was 22.5 jin. In the same year, China's leather industry purchased more than 79.85 million pig hides. [OW170517 Beijing XINHUA Domestic Service in Chinese 0255 GMT 16 Jun 81]

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LARGE INCREASES IN RAPESEED YIELD OBTAINED

Beijing RENMIN RIBAO in Chinese 21 May 81 p 1

[Article: "Anhui Increases Yield of Rapeseed by Sixty-Five Percent; Yunan Creates New Record of High Yields of Cane Sugar"]

[Text] Xinhua reporter Wang Likuang [3769 4409 6315] reports: This reporter learned from the agricultural management department that Anhui Province again realized large scale increases in the yield of rapeseed this year on the basis of a continuous average annual increase of over 1 million dan in total yield for 3 years, thus again creating the best level of the past. The total yield of rapeseed of the entire province can reach 9 million dan, an increase of 65 percent over last year.

Every county from south of the Changjiang to north of the Hui River throughout the province produced increased yields of rapeseed. The total yield of rapeseed in the Liuan region increased 90 percent over last year. Chaohu region contracted the job of producing only 250,000 dan of rapeseed. Now, this region expects to sell 1.5 million dan. The Anhui provincial food grain department issued a procurement of 3.24 million dan of rapeseed. The actual procurement is estimated to surpass this by more than onefold.

Xinhua, Kunming, May 20: Yunan Province's production of cane sugar has created a new record in high yields: This year, the province's yield of cane sugar will reach 187,000 tons, an increase of 15,000 tons over last year.

This year's increased yield of cane sugar in Yunan Province is the result of conscientious implementation of the party's economic policy and close cooperation between the workers and farmers. Last year, the provincial committee and the provincial people's government established measures to encourage sugar cane production and implemented rewards for joint production of sugar cane and food grains, profits realized by mechanized sugar refineries, distribution of profits to communes and brigades, and surplus over established basic quotas. These measures have mobilized the enthusiasm of the farmers to plant sugar cane.

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SPRING FARMING SAID PROGRESSING WELL

Fuzhou FUJIAN RIBAO in Chinese 3 May 81 p 1

[Article: Composite of Drafts by Dong Diwei [5516 1593 0251] and Others Received by Provincial Department of Agriculture: "A Rarely Good Situation in This Year's Spring Farming in Fujian Province; the Frequently Called For "No Transplanting of Seedlings After 1 May" Honored This Year; The Frequently Called for Scientific Farming Done Well This Year; No Need to Prod People to Farm As Farmers Themselves Do a Good Job of Major Spring Farming Tasks"]

[Excerpts] A good situation such as rarely occurs has taken place in spring farming in Fujian Province this year. The "no transplanting of seedlings beyond 1 May (meaning in winter fallow fields)" called for for many years has been honored this year. The scientific farming called for for many years has also been done well this year. Numerous cadres have reported no need this year to prod farmers to farm as they take the initiative themselves to do a good job of major spring farming tasks. As the broad masses of commune members discuss these changes, there is no one who does not applaud and praise the system of responsibility for agricultural production.

Commune Members Charged With Vigor

Institution of various forms of a system of responsibility for production has changed the longstanding situation of "a big to do about going to work, but a general leveling in assignments." Commune members are charged with vigor. Cadres and masses in Xiapu County universally report that despite the slow start in spring farming this year, the pace has been fast, quality good, and productive forces have really been greatly liberated. Commune members in Minqing County report two things that have made them happiest since Liberation. One was land reform, and the other was institution of a system of responsibility for spring farming this year. The Keyang Production Brigade in this county, which was rather severely hurt by the former "leftism," used to dilly-dally with spring farming, taking a month to complete it. With the implementation of the system of responsibility this year, they finished it within 10 days. In Longqi Prefecture, work efficiency of numerous communes and brigades has generally risen this year. Work that might require a day to do in the past is now finished in 3 or 4 hours. Work that used to take 10 people now requires only four or five. Tasks that this prefecture formerly required more than 20 days to complete now requires only half a month.

In mountain areas with scant population relative to the amount of land, and in places that have been backward for a long period of time, the role that a system of responsibility has played has been even more striking. In such places, "when one person contracts work, the whole family worries," and they have made unprecedented efforts to complete ahead of time the task of transplanting seedlings for the early rice crop.

According to statistics, the maximum daily amount of seedlings planted in the province was 640,000 mu, 140,000 mu more than for the same period last year. As of 30 April, 10.62 million mu, or 97 percent of the planned acreage for all prefectures and municipalities, had been planted. Except for an extremely small number of fields that had grown winter crops, all the land that had lay fallow during the winter has been planted more than a week earlier than last year. Spring soybeans, peanuts, sugarcane, and tobacco have been planted in greater quantity, faster, and better than during the same period last year.

"Enthusiasm for Science and Technology" Rises to Meet the Occasion

During this year's spring farming and production, the broad masses of cadres and commune members demonstrated an extreme amount of enthusiasm for science and technology to form a "science and technology enthusiasm" such as has not been seen for many a year. Statistics show that since the lunar New Year, almost 200,000 man times of commune members throughout the province have attended short training courses in agricultural techniques, a more than 70,000 man times increase over the same period last year. Gutian County ran 109 short farm training classes with each class exceeding the originally planned for number of people for a total of more than 20,000 man times, more than 12,000 man times more than during the same period last year.

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NEW RICE VARIETIES CHARACTERISTIC REPORTED

Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 2 10 Apr 81 pp 14-15

[Article Collated From Draft Submitted by Weng Fulin [5040 4395 3829] of Rice and Wheat Research Institute of Fujian Provincial Academy of Agricultural Sciences, and of Fuzhou Municipal Agricultural Institute: "New Rice Varieties"]

[Text] Recently a group of new rice varieties newly developed by the Fujian Provincial Academy of Agricultural Sciences' Rice and Wheat Research Institute and the Fuzhou Municipal Agricultural Institute, "Zaoyeqing," "Mingui No 1," "Mindao No 17," and "Wuangfushu" made a good showing in experiments with their yield characteristics. A briefing on their traits and characteristics is provided below.

1. Zaoyeqing

Zaoyeqing was bred by the Rice and Wheat Institute of the Fujian Provincial Academy of Agricultural Sciences through the irridiation of the late maturing, early rice variety, Zhaiyeqing No 8. It is an early-maturing intermediate rice with low requirements for fertilizer, high yields, and fine quality. The process whereby it was bred was as follows: radiation source for its transformation was 60_{Co2} rays in a 20,000 roentgen dosage. In 1974 after Zhaiyeqing No 8 was irradiated, it was grown for M_1 generation. Next, harvesting, breeding and selection were done in accordance with radiation transformation breeding procedures. In 1975, transplanting of individual plants of the M_2 generation was begun, and before ripening, various individual mutant plants possessing different characteristics were selected. After the M_3 generation, plant line breeding was begun with 60 plants in each plant line being planted, one plant line of which demonstrated good traits of early ripening, and bumper yields. Next, breeding for several consecutive generations was done in Fuzhou and in Dongshan, and during the late crop of 1977 in the M_7 generation, the type was finalized. Comparative experiments for yields conducted by the institute during the years 1978 and 1979 showed this variety to have shorter stems than the original variety, a 10 day earlier ripening date, closely packed kernels on the panicles, plump kernels, and front-running yields, and thus it was named.

Traits and characteristics: Plants are from 85 to 90 centimeters tall; plant shape is compact; stems are thin and pliable; and leaves are narrow, short, and thick. Fairly strong tillering ability, and panicle formation rate is outstanding, being higher than most varieties. Grains per panicle number 88 to 92; fruiting rate is 85 percent; grain is densely packed on the panicles; the per thousand weight of grain is 23.8 grams; unhusked grains are golden yellow in color; glumes are colorless, and without awns Color during the late stage of ripening is good, and stems and leaves are bright green at maturity. Base of plants allows air circulation and penetration of light; bottom leaves are clean. When grown in Fuzhou Prefecture, the total period of growth was 115 days, with ripening occurring 3 days earlier than for Zaodaohong 410. It is an early mid-season variety, suitable for use either as an early or a late crop. It has fairly strong resistance to diseases and insect pests; it showed resistance or only slight susceptibility to blast of rice, and was virtually undamaged by sheath and culm blight, purple stem disease [4793 2731 4016], and leaf rollers. The quality of the husked rice is excellent, and when cooked it is soft, fluffy, and delicious. The husked rice rate is 72 percent, and the quality is vastly superior to that of Hong 410.

Test Planting Results: The new variety was part of a provincewide preparatory experiments for rice growing area tests at 14 different sites, with yields averaging 847.4 jin per mu to take first place. In comparative tests at 12 sites in suburban Fuzhou during the same year, yields averaged 963.3 jin per mu, 6.7 percent more than from Hong 410. In small plot tests conducted at the Jinjiang Prefecture Institute, at Fuding, and Zhouning county superior variety farms, and at the Honglu Commune Superior Variety Farm in Fuqing, yields were from 1000 to 1052 jin per mu, 5.8 to 25.4 percent greater than for Hong 410. In 1980, it was part of provincewide combined area experiments conducted at 21 different sites, producing yields averaging 823.2 jin per mu, 10.8 percent higher than the 743 jin per mu yields of Hong 410, and taking first place in yields. In terms of polished rice output, Zaoyeqing produced 592.7 jin per mu as compared with 475.5 jin per mu for Hong 410, for a real increase in husked rice output of 24.7 percent. In open field test plantings and demonstrations everywhere, it exhibited characteristics of early ripening, economy in requirements for fertilizer, resistance to disease, and high yields. In demonstration plantings on 3000 mu at Nantong Commune in Minhou County during 1980, open field yields were greater than 800 jin per mu with individual yields of 1000 jin per mu. Test planting on 12.8 mu at Chengmen Production Brigade in suburban Fuzhou brought yields averaging 822.3 jin per mu with 2.5 mu producing yields of 970 jin per mu.

Essentials of Cultivation: This variety is temperature-sensitive, and growth periods for both early and late crops are fairly consistent. As an early crop it is planted in mid to late March, and as a late crop it is planted in mid-July. It is transplanted at a seedling age of 15 to 20 days. Its requirements in soil quality and for fertilizer and water are not high, and it may be grown on both good and bad soil. On fields of moderate fertility, increases in yields are outstanding. Requirements as to planting time are not stringent, and bumper harvests may be obtained from the early crop when planted on ground that had lain fallow or where green manure, rape or wheat had been grown. Because this variety has rather spindly stems, attention must be given to water and fertilizer management in early crop cultivation, making sure to drain and dry the fields to control excessive lengthening between nodes. Fertilization with nitrogenous fertilizer is also to be guarded against. Particularly to be avoided is excessively late fertilization which causes leaves to grow during the late stage screening out the sun. Consequently, the tops become heavy while the bottoms remain light, leading to lodging.

2. Mingui No 1 was bred from the "Gui 1138" line by the Rice and Wheat Institute of the Fujian Provincial Academy of Agricultural Sciences. Planting of 0.45 mu as an early crop at this institute produced yields of 1121 per mu. In comparative tests of varieties conducted by the farm science team of Dongmei Brigade, Jiaomei Commune in Longhai County, yields of 936 jin per mu were obtained, giving it first place among all varieties tested.

Traits and characteristics. It has a growth period totaling from 135 to 140 days and ripens 4 days earlier than "Siyou No 2;" plant height is 95 centimeters; it is a moderately bushy plant; has thick stems, thick, straight leaves, moderate tillering strength, high panicle formation rate, large panicles with numerous grains, high fruiting rate (reaching as much as 89 percent), weight per thousand grains of 25 to 26 grams, fairly rapid coming into milk and ripening in late stage, good change in color and tolerates fertilizer and resists lodging. Grown in the rice blast area of Jiangle in 1980, it showed resistance to rice blast in the absence of prevention and control measures.

Essentials of Cultivation: This is a large panicle variety. In cultivation, attention must be given to propagation of sturdy seedlings, reasonably close planting of clusters containing 4 or 5 seedlings each, and heavy base fertilization with early follow-up topdressing of fertilizer to promote early growth and development, thereby increasing the number of large panicles to fully tap its potential for output.

3. Mindao No 17

Mindao No 17 (formerly designated 3960170) was developed by the Fujian Provincial Academy of Agricultural Sciences using "IR 24" as the female parent and using the hybrid posterity of (an apparent American rice x Kangmei No 1) as the male parent to produce a hybrid, which was finalized as a type in 1979 after eight generations of selective breeding. In 1979 preparatory testings of new lines, this variety produced yields equivalent to 1090.34 jin per mu (from a small plot with an area of 0.32 mu) for an 867.34 jin or 25.71 percent greater yield than comparable variety "Hong 410" to take first place. After undergoing variable analysis, increased yields reached extremely remarkable standards. Testing under national conditions in disease areas at Jiuquling, Dachi, Longyan County, and at an agricultural institute farm in Longyan Prefecture showed this variety to have resistance to blast of rice and rice neck blast, and slight susceptibility to sheath and culm blight. Its resistance to disease is greater than that of "Hong 410."

Traits and Characteristics: Mindao No 17 is a mid to late ripening early rice variety, which ripens from 5 to 7 days later than "Hong 410." It comes into milk and ripens fairly rapidly; plant shape is compact; leaf color is dark green; and leaves are narrow and straight. Plant height is 79 centimeters; tillering strength is moderate; panicle formation rate is high; panicles are rather dense; each head forms an average of 67.34 grains of rice; and fruiting rate is 81.10 percent (under identical conditions, Hong 410" forms an average of 67.34 grains of rice per head and has a 71.26 percent fruiting rate). Per thousand grain weight is 23.2 grams; quality of husked rice is excellent; starchiness and taste are good; it has a husked rice rate of 80.1 percent, and a polished rice rate of 70 percent.

Guangfushu

Guangfushu line was bred from Zhejiang glutinous rice mutant material, which the Fuzhou Municipal Agricultural Institute irradiated with 60_{Co} and laser beams. This variety has exhibited early maturing and high yield characteristics during 2 years of test planting and demonstrations on 1000 mu in suburban Fuzhou and in Minhou, Lianjiang, and Zhenghe counties. Yields have usually been 700 to 800 jin per mu. On 2.34 mu at Houban Brigade, Gaishan Commune in suburban Fuzhou, yields averaged 831 jin per mu. On 2 mu at Fuchi Brigade, Xianglian Commune, Minhou County, yields averaged 801 jin per mu. On 16.7 mu of open fields at the institute, yields averaged 900.06 jin per mu. In tests conducted during 1980 by provincial and municipal science committees, the Rice and Wheat Institute of the Provincial Academy of Agricultural Sciences, the Municipal Farm Office, and the Bureau of Agriculture, the early crop produced 1146.6 jin of dry paddy from 1.288 mu for a yield of 890.2 jin per mu. From the late crop, a yield of 1219.5 jin of dry paddy was harvested from 1.225 mu for yields averaging 995.5 jin per mu. The masses at test sites believe that Guangfushu tolerates cold well and ripens early. Sown on 10 March on the Fuzhou Plain, it will be ripe for harvesting before 5 July, providing satisfactorily for late hybrid seedling fields or arrangements for seed production. In mountain areas too, it may be used as the initial crop in the early season and as the final crop in the late season. This variety may be used as an early or late crop alike, and can speed up development of glutinous rice production to satisfy the needs of cities and the countryside.

Traits and characteristics: As an early crop it has a growing period of 108 days, 110 days as a late crop using old seed and 120 days using new seed. Plant shape is rather compact; plant height is from 81 to 90 centimeters with thin stems and much tillering; leaf color is dark green; it changes color particularly well during late season, boot leaves are 20.1 centimeters long and 1.05 centimeters wide; tips of glumes are colorless. Root system is well developed; growth is vigorous; tillering is strong; effective panicles per mu number about 300,000; panicle's contain from 50 to 60 grains; fruiting rate is 85 to 90 percent; per thousand weight of grains in early crop is 31.5 grams and 32.4 grams for the late crop. It is not prone to shattering. It tolerates fertilizer and is suitable for growing in soil of moderate or better fertility and water supply. Quality of hulled rice is moderate and superior to both Zhejiangno and Zhenxuanshu. No incidence of purple stem disease has been found in the course of its cultivation.

Essentials of Cultivation: Care must be taken to sow it on time, to produce sturdy seedlings, and to make reasonably close planting. A 6 x 4 or 5 x 5 pattern is suitable with each clump planted containing about 10 seedlings so as to get a maximum 500,000 to 600,000 tillers for the production of 300,000 effective panicles. This variety tolerates fertilizer, but must be given sufficient base fertilizer and a rapid follow-up application of fertilizer after transplanting to promote early tillering. From the transplanting of a sufficient number of basic seedlings, fertilization with 15 to 20 jin per mu of pure nitrogen, plus the addition of a proper amount of phosphate and potash fertilizer, communes and brigades on the plains have produced yields of as high as 900 jin per mu. Water management methods are largely the same as for Hong 410. Care must be taken to prevent and control sheath and culm blight.

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FUJIAN

WARNINGS ISSUED ON ANTICIPATED SEVERE OUTBREAKS OF DISEASES, INSECT PESTS

Fuzhou FUJIAN RIBAO in Chinese 29 Apr 81 p 2

[Article: "Early Season Outbreaks of Major Diseases and Insect Pests Will Be Fairly Severe"]

[Text] The Provincial Department of Agriculture has made a comprehensive analysis of base figures for disease germs and insect sources collected through investigation by all jurisdictions, of cropping patterns for different varieties, and of weather reports, coming to the conclusion that this year's early season outbreak of major diseases and insect pests will be fairly severe. Highlights are that the incidence of rice and tuber diseases will be fairly severe, the threat being greater than last year. Base figures for insect pests are fairly high and death rates fairly low; damage may be greater than last year. The number of migratory flying rice leaf rollers that have migrated into the area may be fairly large.

(1) Blast of rice. A year of rather serious outbreaks. Main data: (1) Bacteria sources numerous. (2) Blast on seedlings appeared early. On 20 February at Huian County, blast on seedlings was discovered in the Zhenfu variety seedling fields, and at Wuan in Zimao, Jinjiang County, the incidence of riceblast on seedlings was determined to be 15 percent as of 2 March. (3) Susceptibility to disease of varieties. The formerly fairly disease resistant Hong line conventional varieties, and combinations such as Shanyou, and Weiyou have, after many years of cultivation, seen a gradual deterioration in their disease resistance. The acreage planted to susceptible Siyou No 2 combinations is substantial. (4) Irrational composition of chemical fertilizer. Large amounts of nitrogenous fertilizer and little potash and phosphate fertilizer makes for easy inducement of disease damage. (5) Weather forecasts call for a protracted period of continuous rainfall this year, favoring the spread of disease and not favoring applications of pesticide for prevention and control.

(2) Bacterial blight of rice. Last year, this disease was rampant in southern coastal regions, and a noticeable increase occurred in the disease area in interior mountain regions. Remnant sources of bacteria are fairly widespread. Currently promoted varieties are largely susceptible to this disease. This plus weather forecasts of early typhoons and a very rainy rainy season leads to the prediction that bacterial blight on the early crop will be fairly serious in coastal disease areas and in some interior places.

(3) Sheath and culm blight of rice. This disease has increased in intensity during recent years, and the area of the incidence has spread year by year. Sources of bacteria exist everywhere. Investigations done in all jurisdictions have shown that the quantity of sclerotail disease is several tens of thousands of grains per mu in areas of least infestation, and 700,000 to 800,000 grains per mu in heavily infested areas. This plus the present lack of disease resistant varieties, and the steady increases in applications of nitrogenous fertilizer makes for a prediction that sheath and culm blight of rice in the early crop will be quite serious.

(4) Yellow rice borers [Tryporyza incertellus Walk]. A year of medium or medium-heavy incidence. Major data is as follows: (1) Insect population base figures fairly high. (2) Overwintering death rate generally lower than last year. (3) The fairly long panicle formation stage of early rice crop Hong line varieties and hybrid rices favors damage through invasion by yellow rice borers. The period of outbreak will be about the same as in ordinary years.

(5) Rice stem borers [Chilo suppressalis Walk]. Outbreaks will be fairly serious in Fuzhou and eastern Fujian areas, and in inland areas of northwestern Fujian.

(6) Rice leaf rollers. Owing to the large 1978 and 1980 migrations of insect sources from elsewhere, a large outbreak of second generation will occur throughout the province. Forecasts on the insect situation from southern Guangdong this year tell of fairly serious outbreaks of second generation, and it is expected that a fairly large number of rice leaf rollers will also migrate into the area. Close attention should be given to their movements with monitoring being done.

(7) Rice planthoppers and leafhoppers. In recent years, during the late stage of the early crop, the numbers of white back leafhoppers and brown leafhoppers have frequently increased, creating "clumps" that cause damage. This year, during the late stage of the early crop, coastal areas are threatened.

(8) Sugarcane diseases and insect pest infestations. Inspections done in Huian County show the number of weevils slightly fewer than last year. The incidence of vine cutting disease [mangebing 5585 0480 4016] in seedling fields is generally 3 to 4 percent, reaching a maximum of 15 percent. Susceptible variety "Xinzhonghua" has an incidence rate of 65 percent. Weather forecasts call for substantial summer rain. This plus the susceptibility to disease of most varieties means fairly serious outbreaks of mangebing are predicted. Sweet potato blast, though under control in old disease areas, is on the rise in new disease areas.

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FUJIAN

KINDS OF FERTILIZER, FERTILIZING TECHNIQUES FOR RICE EXPLORED

Fuzhou FUJIAN RIBAO in Chinese 12 Apr 81 p 2

[Article by Lin Hui [2651 6540], Director, Ferilizer Research Laboratory, Provincial Institute of Soil Fertility: "A Chart About Rational Fertilization of Ricefields"]

[Text] When chemical fertilizer is put into the soil, only about 30 to 50 percent of the nitrogenous fertilizer is absorbed and used by crops. (In Fujian Province, between 70 and 80 percent of the nitrogenous fertilizer used is either ammonium carbonate or ammonia water, whose utilization is even lower). Only between 10 and 25 percent of the phosphate fertilizer and between 40 and 60 percent of the potash fertilizer is absorbed and used by crops. In short, the chemical fertilizer utilization rate averages less than 50 percent, and using the old method of fertilizing, more than half of the chemical fertilizer found no use. Furthermore, reporting from both home and abroad universally shows the effectiveness of fertilizer to have declined over what it had been. In China during the 1960's, 1 jin of ammonium sulfate could increase grain yields by from 3 to 5 jin, but now yields increase by only 1 jin or less. In Fujian Province during the early 1950's, 1 jin of ammonium sulfate could increase paddy yields by close to 10 jin. By the mid 1960's, this had declined to between 3 and 4 jin, and by the late 1970's it had declined even further to around 2 jin. Declines in the utilization rate and economic output rate of chemical fertilizer has been general in agriculture throughout the world, and constitutes one of its most serious problems.

The reasons for the lessening of the utilization rate and the lowering of the economic output rate of chemical fertilizer are, apart from questions of production and distribution of supplies, the rather conspicuous way fertilizer has been used in agriculture. Currently a tendency toward "four emphases and four slights" generally exists, namely, emphasis on commodity chemical fertilizer while slighting farmyard fertilizer; emphasis on nitrogenous fertilizer while slighting phosphate and potash fertilizers; emphasis on animal dung and urine while slighting green manure; and emphasis on fertilizer itself while slighting fertilization techniques. Unless these tendencies are overcome, rational use of fertilizer is nothing but empty talk. The following is devoted to a discussion of fertilizing techniques for rice fields.

1. Fertilization of Seedling Beds

When two or three true leaves appear on rice shoots, the rice shoots begin to draw nutrients from outside. If nutrients are lacking in the soil, and nutrition is inadequate during the early growth period of rice seedlings, future normal development will be impaired. "If the seedlings are good, the rice will grow well." Fertilization of the seedling beds that is concentrated and economical, which is both convenient and saving of labor, is a fertilization technique that uses less fertilizer for increased yields. Study shows that in addition to regular applications of decomposed human excrement and urine to seedling fields, supplemental fertilization with phosphate and potash fertilizers (at a rate of 35 jin per mu of calcium superphosphate, and 20 to 30 jin of potassium sulfate) is extremely important. This will make the parts of the plants above ground be short and healthy, and the parts below ground develop so that seedlings will be sturdy, green up quickly, and tiller easily to the benefit of increased yields. The utilization rate for fertilizer on rice seedling fields may be as high as 60 percent or more, or two or three fold that of the same quantity of fertilizer used on open fields.

2. Deep Fertilization of the Entire Layer

There are numerous ways in which chemical fertilizer is lost in rice fields. It percolates away with water; it runs off the surface; it is fixed in the soil; it is biologically transformed, and nitrogenous fertilizer, in particular, is directly volatilized and lost through denitrogenation, etc. However, the "denitrogenation function" of micro-organisms accounts for the greatest proportion of loss. Therefore, during spring plowing, in addition to using some quick acting fertilizer on the fields, most of the fertilizer (including both organic and chemical fertilizer) should be sprinkled on the ground and then turned under at once and watered in. This will achieve the objective of concentrating it and applying it deeply. Research has shown that such deep application of ammonium sulfate increases utilization rate by from 10 to 15 percent over spreading it on the ground surface, and can increase paddy yields by a general 10 percent or so, with 1 jin of chemical fertilizer producing between 1 and 2 additional jin of paddy. Experiments have demonstrated that not only chemical fertilizer, but human and animal excrement and urine, and green manure as well, should be applied throughout the growing layer.

3. Deep Application of Pellet Fertilizer

Top dressing of nitrogenous, phosphate, and potash chemical fertilizer that has been compressed into fertilizer pellets by a fertilizer pelleting machine, is a new technique for fertilizing paddy fields. In this technique, within 7 to 10 days after the early rice crop has been transplanted, or within 10 to 15 days after the late rice crop has been transplanted, one pellet is applied to every four clumps of rice seedlings (every other row not being fertilized), the pellets being applied to a depth of about 2 cun. In this method of fertilization the supply of fertilizer is constant, slow acting, and long acting, thereby reducing loss of fertilizer. Observation has shown that on paddy fields were 30 jin per mu of ammonium carbonate has been spread, in less than 20 days, the fertilizer has disappeared and yellowing of plants occurs. By using the same amount of ammonium carbonate made up into pellets and deeply applied, it is only after 28 days that the leaves gradually begin to turn yellow. Measurement of field output shows an increase in utilization rate of 38 percent from ammonium carbonate, 50 percent for calcium superphosphate, and 48 percent when deeply applied in pellet form, and a 22 percent total increase in beneficial micro-organisms in the soil. Several years of experiments at many places in Fujian Province, and experience with production on large areas have shown rather consistent increases in yields by from 50 to 60 jin per mu of paddy, or a yield increase of from 10 to 15 percent when pellet fertilizer is deeply applied, as compared with surface application of the same quantity of fertilizer. The addition to compound pellet fertilizers containing the three essential elements of some nitrogenous fertilizer synergist (such as dicyandiamide) or some trace element fertilizer (such as zinc, boron, and molybdenum) as needed to form compound pellet fertilizer, or trace element compound pellet fertilizer, can further boost fertilizer effectiveness. At the present time, various proportionally mixed pellet chemical fertilizers may be made without the addition of soil by using a pellet fertilizer machine successfully developed in Fujian Province. Each pellet weighs about 1 gram, and using a double row hand operated fertilizer device, approximately 0.8 to 1 mu per hour may be fertilized, easily and effectively. In 1979, more than 3.2 million mu throughout Fujian Province was fertilized deeply with pellet fertilizer.

4. Leaf Spraying

Spraying of liquid fertilizer on leaf surfaces during the panicle formation stage for paddy rice, is a fine method for applying fertilizer both economically and sensibly during the later stage of growth. Measurements using isotope techniques show that within slightly more than 10 minutes following spraying with urea, the leaves absorb it, and within half an hour an electron microscope reveals an increase in leaf chlorophyll. In this method, fertilizer use is economical and results quick. Since the fertilizer does not come in contact with the soil, but rather is directly absorbed by the leaves, the utilization rate is very high. In general, spraying of urea at a rate of 1 jin per mu of rice has an effectiveness equal to spreading on the ground of 5 jin per mu of urea. Moreover, during the late stage rice plants are shiny green with waxy steams, the functioning period for the three topmost leaves is extended; there is no premature degeneration of plants, no dieing off; grains are plump, and yields are high. In 1979, the area of the province that was leaf sprayed amounted to more than 8 million mu. For leaf spraying, selection of the type fertilizer to be used, its concentration, and the number of times it is to be used may be done in accordance with the local situation. Single element fertilizer solutions containing nitrogen or phosphate, or potassium (such as 2 jin of urea, or 2 jin of calcium superphosphate, or 2 jin of potassium phosphate diluted in 100 jin of water), or nitrogen-phosphate, nitrogen-potash, or nitrogen-phoshate-potash compound fertilizer solutions (such as 1 jin of urea plus 1 jin of calcium superphosphate, or 2 liang of potassium dihydrogen phosphate, or 1 jin of urea plus 1 to 2 liang of potassium dihydrogen phosphate, or the addition of some trace element fertilizer, each diluted in 100 jin of water) produces very good results.

5. "Steady at the Beginning, Careful in Mid-season, and Maintenance at the End"

Still another advance in scientific use of fertilizer for high yielding rice fields has been study of rational applications of chemical fertilizer at each stage of growth. For numerous years, inasmuch as the proportion of chemical fertilizer to all fertilizer has shown tremendous rise and organic fertilizer has gradually decreased, and since a V-shape pattern of fertilization has been used with "large amounts at first, restrain in mid-season, and maintenance at the end," seedlings grew large during the early period only to be unable to maintain growth in mid-season for lack of fertilizer, resulting in an aberration of much ineffective tillering and a low grain to straw ratio. Following several years of experimentation, a W-shape fertilizer application pattern has been adopted with "large amounts at first, careful amounts given in mid-season, and maintenance provided at the end." This is very useful in providing supplemental nutrients at the stage of panicle formation. Panicle formation rate is consequently high; stems and branches are numerous; regression of spikelets is slight, and grains are numerous and plump. Control experiments have shown that from relatively small amounts of fertilizer applied in the W method, yields are equivalent to those obtained by using almost double the amount of fertilizer in the V method; consequently the effectiveness of fertilization improves remarkably.

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BRIEFS

WHEAT SOWING--This year Heilongjiang's task of wheat sowing was successfully completed. By 5 May, 31.6 million mu of wheat had already been planted, 600,000 mu more than called for by the plan. This exceeded the figure for last year, which set a record for area planted. This year, provincial wheat sowing was carried out under the conditions of waterlogging in the east and drought in the west. When wheat sowing began, wheat areas in the east which suffered waterlogging represented over 60 percent of the area to be sown with wheat. Wheat areas in the west which suffered drought covered over two million mu. Throughout the province, wheat sowing was begun five to seven days later than in previous years. In mid April, temperatures rose and the soil became workable rather quickly. Every area seized the opportunity, fully bringing into play the role of machinery, so that the daily pace of wheat sowing quickened greatly. 1,068,000 mu were sown daily; this was a daily wheat sowing rate which was 70 percent higher than last year. Because of this, although wheat sowing was begun later than last year, it was basically completed approximately ten days earlier than last year. The wheat area sown during the optimum time to obtain a bumper harvest was 83 percent, 11 percent greater than last year. [Excerpts] [Harbin HEILONGJIANG RIBAO in Chinese 7 May 81 p 1]

CSO: 4007/467

HENAN

RESEARCH, TECHNICAL PROMOTION LEADS TO HIGH WHEAT OUTPUT

Beijing GUANGMING RIBAO in Chinese 10 May 81 pp 1 & 2

[Article by Correspondent Zhang Yichang [1728 5065 2490]: "A Successful Experience Whereby Science and Technology Promotes Increased Agricultural Production; An Examination of Comprehensive Research and Technical Promotion in Henan Province's Consistently High Wheat Output at Low Cost"]

[Text] "Wheat, wheat. Toil half a year and 200 (jin) is all you get."

This is a farmers' saying that describes low yields obtained from wheat. China's famous wheat growing area, Henan Province, has suffered much from low wheat yields. During the 1960's, the province annually consumed more than 2 billion jin of national uniformly marketed grain, and during the 1970's there was no lack of people in Henan in need of food....

Within the short space of several years, vast changes have taken place in the midlands. Now, not only has Henan gotten rid of its label as a low producer of wheat, but also holds three national firsts in wheat production: first in acreage; first in total output; and first in its contribution of commodity wheat to the state.

Statistics show that since 1974, except for the great drought year of 1977 when wheat output declined slightly, during the other 5 years, Henan Province has increased output annually showing a 6 year accumulated net increase of 21.3 billion jin. In 1979, output totaled 20.3 million jin to set an all-time high in the province for wheat. As compared with the 1960's, both annual wheat output and per unit yields almost doubled. Commodity wheat supplied to the state by Henan Province amounted to 2.78 billion jin in 1979, a 1.18 billion increase over 1974. The people's livelihood improved commensurately as well. In 1979, distribution of wheat averaged more than 200 jin per capita, a more than 100 jin increase over 1974.

Why has production of wheat in Henan Province been able to sustain such great increases? In addition to the long practiced capital construction of farmland, greatly increased use of chemical fertilizer, and the implementation in recent years of a system of responsibility linking calculation of remuneration to production, which has aroused the enthusiasm of the broad masses of peasants, launching by province of large scale comprehensive study and extensive cooperation in technical promotion has been a decisive factor in sustaining consecutive years of increased wheat output.

Correct Policy Decisions

Henan Province's natural conditions for wheat production are superior, and the wheat acreage amounts to 62 million mu. However, in the 25 year period 1949 to 1974, yields averaged only slightly more than 80 jin to about 200 jin per mu, and the speed of development was slow. By the 1970's a situation of fluctuation with no forward movement had emerged.

In order to increase output, medium and low producing areas blindly promoted high yield varieties and increased the amount of seeds sown at that time, with the outcome going contrary to wishes. Production dropped. When high output areas used "three larges" (large amounts of water, large amounts of fertilizer, and large amounts of seeds sown) to promote output, lodging of green stems occurred over wide areas, and output declined by a general 30 to 40 percent. In many places, high costs occurred. A survey of 100 production teams in Zhoukou Prefecture showed a general rise in costs, and in some teams, costs (for seeds, irrigation, chemical fertilizer, pesticides, and mechanization) amounted to more than 0.10 yuan per jin of wheat.

This raised a key problem in urgent need of solution for science and technology. How could wheat production achieve consistently high output at low cost?

At this time, a renowned labor model in Henan, the secretary of the Yuetan Brigade CCP branch in Yanshi County, Liu Yingxiang [0491 2019 4382], after observing the bad effects of the "three larges" on the growth and development of wheat, began to realize that blind increases in water, fertilizer, and seeds to increase output ran contrary to the laws governing growth and development of wheat. He personally did some experiments, reducing the quantity of seeds sown from 25 jin to 13 jin per mu and cutting in half the amount of fertilization. Additionally, he kept sturdy seedlings and helped along weak seedlings, properly controlling plant colonies, which resulted in yields of more than 760 jin per mu to break the situation of wheat output fluctuating with no forward movement. Subsequently, with the help of institutions of higher learning and specialists in scientific research units, he summarized basic experiences in realizing consistently high wheat yields at low cost.

In 1974, the National On-site Wheat Conference convened by the State Council in Shandong affirmed the thrust of research done by the Yuetan Brigade. After the conference, Henan Province used the comprehensive research in consistently high outputs of wheat at low cost as a major policy decision on the agricultural front, and set up the Henan Provincial Consistently High Yields at Low Cost Comprehensive Wheat Research and Technical Promotion Cooperative Group to begin at once this research work.

Inasmuch as the objectives of this project were well-defined, in less than 5 years of effort their research was able to come up with a complete set of production patterns for producing wheat in Henan with consistently high yields and at low cost.

These included: three laws related to tillering and panicle formation, development of young panicles, and the coming into milk of grain for dominant varieties of wheat grown throughout Henan; five major technical and economic criteria related to low yields, medium yields, and high yields in a rational plant colony structure, sensible fertilization, sensible irrigation, care of seedlings depending on their appearance, and cost structure; key technical measures to increase yields for five different ecological types, namely highly fertile wetland wheat, hilly dry and infertile soil wheat, sandy, alkaline soil wheat, boggy land wheat, and wheat grown rotationally after rice.

Henan Province very quickly promoted the aforestated research results. Wheat output rose tremendously; costs dropped; and economic benefits were remarkable. During the past 6 years, yields have averaged annual increases of 3.55 billion jin. At a procurement list price of 0.136 yuan per jin, this translates to about 480 million yuan, for a 6 year accumulation of 2.78 billion yuan. Costs per jin dropped tremendously (statistics from four major counties showing a 28.5 percent decline in 1979 as compared with 1974). The decline included savings in seeds amounting annually to about 300 million jin. Six years experience has shown that when correct policy decisions are made on widespread scientific and technical problems in agricultural production urgently in need of solution, they play a huge role in development of the national economy.

Coordinated Attack

Coordination among several disciplines and numerous departments was the key to such major accomplishments as these in Henan Pronvince's wheat research.

Participating in this great coordination were technicians in the specialities of cultivation, soil fertility, irrigation, breeding, meteorology, plant protection, agricultural economics, and farm machines, and they used the method of a three-way combination of leaders, technicians and the masses; and three-way teaching, research, and production combining experiments, demonstrations, and promotion in a three-way system of three ways, organizing relevant units focused on wheat production and the scientific and technical forces in the sciences concerned to shorten the time required for scientific research to produce results and to help translate scientific research results into productivity as rapidly as possible.

In concrete terms, organization of such a large cooperative effort had the following advantages:

1. The scientific research forces of several sciences were formed into a fist directed against a single overall objective in a coordinated assault. In the case of research work on laws governing tillering and panicle formation, development of young panicles, and coming into milk of grain in wheat, formerly because of the dispersal of research forces and the on-again-off-again research, more than 20 years of efforts produced no systematic results applicable throughout the province. With the establishment of the Wheat Cooperative Unit, problems were divided on the basis of econological conditions and the distribution of varieties, and work tasks were divided among several institutions and research units, so that within only 3 years time, three major laws governing the dominant varieties grown throughout the

province were worked out and summarized, providing important data for consistently high output of wheat at low cost. Another case in point was the Shuiyi Production Brigade of Jinggonglong Commune, Fengqiu County where there are lowlands bordering the Yellow River. Here more than 3,000 mu was seriously salinized and alkalinized, and during the 1960's, the populace annually consumed much more than 10,000 jin of grain marketed by the government at a uniform price. After formation of the cooperative unit, a coordinated assault conducted by the Nanjing Soil Institute of the Chinese Academy of Sciences, the XinXiang Prefecture Science Committee, and the Fengqiu County Science Committee quickly mastered the dynamic laws governing saline water in the saline-alkaline fields, and took effective action to improve the saline-alkaline land. They gradually spread research achievements in producing consistently high wheat yields at low cost, and by 1979 wheat output showed an average total 16.3 fold increase over that of the 1960's. Now, in addition to the grain requisition purchased by the state, each person annually gets a 500 jin share of wheat.

2. It closely dovetailed the three elements of scientific research, promotion, and production, hastening the spread of scientific and technical accomplishments. As a result of the coordination among numerous departments, the key techniques for increasing output of high, medium, and low yields were rapidly promoted, evoking numerous advanced representative experiences in wheat production. For example, after 22 production brigades in high output areas of Chaobao in Wen County and Houqiao in Boai County mastered laws governing growth and development of wheat and adopted the method of low plant colonies containing sturdy individual plants, they changed their "three larges" methods, thereby solving the lodging of green plants, increased the 1974 per unit yields from 800 jin to the 1979 per unit yields of more than 900 jin, and reduced costs from 0.05 to 0.06 yuan per jin to 0.02 or 0.03 yuan per jin. Thirty-four brigades in the medium yield areas of Mengpai in Changge County and Tanggeng in Huangchuan County adopted technical measures of reasonable close planting, reasonable watering, and reasonable fertilization; yields of 477 jin per mu in 1974 increased to 698 jin in 1979 while costs dropped from 0.05 yuan to 0.03 yuan. Forty-six brigades in Helin, Tongxu County, and Goulin, Deng County, which are low yield areas, adopted measures of use of superior varieties, increased applications of organic fertilizer, and seeding at the right time for a full stand, and per unit yields rose from 286 jin in 1974 to 461 jin in 1979. From the 30 million mu of bumper output places in the province, two prefectures had per unit yields of between 400 and 500 jin last year, and nine counties (or municipalities) had per unit yields of more than 600 to 700 jin. These representative advanced examples play major demonstrative roles for wheat output throughout the province.

3. It helped combine scientific research with a summarization of the experiences of the masses in growing wheat. A great amount of experience in wheat growing exists among the masses that is in need of scientific summarization and promotion. For the past several years, the cooperation unit combined research and summarization to write, "Research on High Yield Wheat Farming Techniques in Xinxiang Prefecture," "Investigation and Analysis of Measures to Increase Wheat Yields in Dry, Hilly Areas of Western Henan," and "Preliminary Analysis of High Wheat Yields of More Than 700 Jin in the Rotational Cropping of Rice With Wheat in Huainan," which were treatises on experiences in increasing yields on large areas. These experiences played a stimulating role in increasing wheat output throughout the province, and enriched the content of scientific research on wheat.

Since this kind of great coordination requires little investment for great results in accordance with the principle of more, faster, better, and more economically, the longer it went on during the past 6 years the more it burgeoned. As of now, 10 academic disciplines, 198 units, 475 research base brigades, and more than 2,700 people are involved in the cooperation unit. Rarely does one see on the frontline of agriculture in China a scientific research coordination unit organized on such a scope for work in a single province and focused on a single crop that has endured for such a long period of time, and has had such great accomplishments.

A Powerful Scientific and Technical Corps

That the great coordination in comprehensive research and spread of techniques on wheat growing in Henan Province has been able to win such great achievements is attributable as well to their having a rather powerful scientific and technical corps. This corps was composed of forces from three main areas.

First was specialized scientific and technical forces. This was the force that guided the assault on the problems and was composed largely of professors from agricultural institutions of higher learning, and scientists and technicians from provincial and prefectural research units as well as from the Farmland Irrigation Institute of the Chinese Academy of Agricultural Sciences. Organization of these dispersed forces, and surmounting the former mutual lack of communication among them, the complex problems, and the weaknesses of being scaracely able to produce results greatly strengthened scientific research capacity. These specialized technicians devoted themselves wholeheartedly to research in a spirit of high responsibility to the party and the people. People like Hu Tingji [5170 1694 4480] assistant professor at the Henan Academy of Agriculture and Li Shouzhang [2621 1108 4545], deputy director of the Wheat Institute of the Provincial Academy of Agricultural Sciences frequently sacrificed their days off to do research and worked together well. Yang Yongguang [2799 3057 0342] assistant professor at Baiquan Agricultural School has done research for more than 20 years on wheat farming, and was able to put forward numerous novel proposals on the appearance of and diagnostic techniques for the proper appearance at all stages of growth of Zhengyin No 1 under high yield farming conditions, which enriched the content of the study of wheat farming. Shi Huien [4258 8396 1869], lecturer in the biology department of the Xinxiang Teacher Training School is an expert in the study of plant traits and characteristics, who provided everyone with theoretical data for the study of the laws of growth and development of wheat. It was precisely because of the unflagging efforts of these comrades that it was possible within several years time to research out and summarize the patterns of wheat production for Henan Province, which had not been completed during several decades in the past.

Second was possession of a peasant technical force with definite cultural knowledge and familiarity with wheat production techniques. This was the mainstay force for the spread of scientific and technical achievements with wheat. Especially noteworthy were the peasants with a certain cultural understanding whose representative was the national labor model and peasant wheat expert, Liu Yingxiang [0491 2019 4382]. Not only was he the first to have experience with producing consistently high wheat yields at low cost, but he used his own experiences as examples for widespread propaganda work, playing a major role in reforming wheat farming throughout the province. During the past several years, Henan Province has used various means to train more than 800,000 peasant technicians, most of whom have become crackerjacks at wheat farming. The Provincial Agricultural Commission has also trained, on behalf of communes and higher level units in the province, more than 1,500 peasant technicians with a rather high degree of technical expertise. They are the spreaders of accomplishments in wheat research, and they are also good advisors in guiding wheat production.

Third was a guiding force to master scientific knowledge for wheat farming. In Henan Province, leading cadres in quite a few counties and communes have become wheat farming experts. When we visited Wen County, people named Lin Binqing [2651 1755 0615], secretary of the Yuecun Commune CCP Committee, as such an expert. In order to explore the way to high rice yields, he himself planted a 3 mu test field in which he sowed 12, 13, and 14 jin of Zhengyin No 1, which was between 6 and 8 jin less per mu than had formerly been planted. As a result, there was no lodging, and output was greater than 950 jin, from which he came to understand a major road to higher yields. His experiences provided great guidance locally. In order to raise the scientific and technical level of leading cadres in communes and brigades, the Provincial Agricultural Commission has organized, in recent years, 1,500 leading cadres in counties and communes in the wheat-growing areas for the study of the entire set of achievements in producing consistently high yields of wheat at low cost. Some of the cadres involved have become surpassing directors of wheat production and have been welcomed by the masses.

New Leadership Methods

The Henan Provincial large scale comprehensive research and technical promotion coordination on wheat is a new thing. This coordination organization is a rather loose organization. Within the organization there is no administrative subordination. Consequently, it is not possible to use executive leadership methods so new leadership methods have to be devised.

Party and government leadership organization in Henan Province much value this great cooperative work, and have made it a matter of important policy. Their leadership methods, which are based on the needs of economic growth, consist mainly of proposing a direction, tasks, and requirements for research to the coordination unit, and hearing reports on research status, while at the same time using as data for party and government organization decisions the research accomplishments that past experience has shown to be effective, and the important suggestions of the coordination unit, which they then hand down through administrative means for implementation. They regard scientists and technicians as staff officers for guiding production and formulating policy decisions, making full use of their role in this regard. They do not interfere on scientific and technical questions, relying entirely on scientists and technicians to solve them through scientific experiments.

In order to strengthen management of research and coordination, the Henan Provincial Science Commission has designated the deputy director of the Department of Agriculture Qi Xieshan [7871 0588 1472] and technical cadre, Shao Guojin [6730 0948 6855] specifically responsible for coordinating the work of the coordinating unit. These two comrades do their duties diligently and responsibly. They are good at coordinating diverse relationships and arousing everyone's initiative through meticulous organizational work and ideological work. They have learned how to befriend the intellectuals, and have become intimate friends with numerous scientists and technicians with whom they have heart-to-heart talks to solve problems. At first, some specialists were in the habit of concerning themselves only with research and not caring for promotion. Through heart-to-heart talks, they made the experts realize that as research accomplishments mounted, unless they could be spread it would be impossible to solve problems in production, and if they were not welcomed by the peasants, they might die an early death. In addition, they organized the experts to go to rural villages to understand problems in promotion and production so that the experts would see the urgent need for science and technology. At this time, Henan's wheat had been greatly damaged by dry, hot winds. The peasants said, "The wheat fears the winds of May, and when the winds have passed, nothing remains." In years when dry hot winds are severe, rice output in the province drops by 3 billion jin. Comrades Qi Xieshan and Shao Guojin held discussions with scientists and technicians at the Agricultural Meteorology Experimental Station, and organized the more than 40 meteorology stations in the province to devote themselves to study of laws governing the occurrence of dry, hot winds and preventive measures of avoidance, change, resistance and prevention to guard against the hot, dry winds. These were rapidly spread, greatly reducing damage from the dry, hot winds.

They also gave attention to guiding scientists and technicians in the proper selection of research topics. This centered on solution to problems in production urgently requiring solution, so that research results would be able to produce substantial economic benefits. Second was maximum help to scientists and technicians in solving problems with experimental methods, purchasing some new instruments and equipment for institutions of higher learning and experimental research units, operating technical training classes, and striving to increase the research level of the cooperative unit. Next was timely attention to the meshing of research achievements. In 1979, they summarized the work of the past 5 years, meshing disparate research achievements in realizing consistently high wheat yields at low cost, producing a major achievement themselves in a production pattern for realizing consistently high yields of wheat at low cost.

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EXCEPTIONALLY FINE WEATHER FOR SPRING FARMING REPORTED

Shenyang LIAONING RIBAO in Chinese 29 Apr 81 p 1

[Article by Cui Xiuting [1508 4423 0080]: "People Happy; Heaven Helps; and Farming is a 'Piece of Cake'. Situation Such As Is Rarely Seen in Many a Year Occurs in This Year's Spring Farming in Liaoning Province; Need For Some Communes and Brigades to Surmount Mentality of Not Hurrying to Catch Up, and Being Sure Not to Botch the Farming Season"]

[Text] The numerous rural villages throughout the province have taken advantage of the good moisture conditions and the rapid warming of the soil to give full attention to spring farming and production. Now spring farming and sowing is at full tide in most prefectures. According to 23 April statistics, more than 15.3 million mu of fields have already been sown in the province. This amounts to 37 percent of the area to be sown, and is more than 3.5 million more mu than was sown at this same time last year.

One striking characteristic of this year's spring farming is the full play of the power of the party's rural policies. Because 90 percent of the production teams in the province have set up some form of a system of responsibility for production, the enthusiasm for production of the broad masses of rural cadres and commune members has been extremely aroused. The concentration for spring plowing and production of the "three resources" [manpower, material and finances], the fullness of vigor of the masses, the high efficiency of labor, and the rapid progress and good quality of spring farming and sowing has rarely occurred during the past several years. Jinzhou Prefecture adapted general methods to the local situation in a strengthening and perfection of a system of responsibility for production, with quite a few impoverished production teams contracting for production with households or contracting jobs with households, and instituting a system of responsibility linking output to the workers concerned. This has enjoyed great popular support, and commune members are filled with confidence about doing a good job of production this year. In every prefecture, spring is in the air and daily more than 500,000 people (a 43,000 increase in the workforce over the same period last year), 1,590 tractors, and more than 34,000 plows and draft animals prepare to do battle on the front line of spring farming and sowing. Already more than 2.64 million mu of fields have been sown, 1 million more than during the same period last year. In Dalian Municipality, 10 percent of the corn crop has been planted, and in Jin County all planting has been done. The masses say, "This year the land has been planted on time and planted carefully. Truly people are happy, the heavens have helped, and planting has been 'a piece of cake'." In leading spring farming and production, every jurisdiction has followed the program for all around development of agriculture, achieving both assurance of steady increases in grain output, and also assuring rather large growth in economic crops and in diversification. Among grain crops the corn acreage has been suitably compressed while the rice, gaoliang, millet, and other grain acreage is greater than last year. In order to increase per unit yields of soybeans, the area planted to nothing but soybeans has been vastly increased. In the Sujiatun district of Shenyang Municipality, the area planted to nothing but soybeans has doubled over last year. Numerous communes and brigades have revived and developed the production of peanuts, sunflowers, and lesser oil crops. Jinzhou Prefecture planned to grow 800,000 mu of peanuts this year, but actually planted 850,000 mu, which will make this an all time record year.

During spring farming and production, every jurisdiction paid attention to the adaptation of general methods to local situations to do a good job of scientific farming. Attendance at provincial training for agricultural leadership cadres, agricultural technicians, and peasant technicians which prepared technical forces for this year's scientific farming was more than 150,000. Chaoyang Prefecture agricultural units also printed and issued technical materials such as essentials of rice and dry farming mulch cultivation techniques with plastic sheeting, essentials of techniques for turning under green manure with machines when grain and green manure have been intercropped, and planting and caring for sunflowers to guide the present scientific farming of fields. The use of plastic sheeting for mulching of peanuts, cotton, paddy rice, and tobacco will be expanded, growing from last year's 5000 mu to almost 100,000 mu.

Problems deserving of attention in current spring farming and production are: Because moisture conditions are good, some places are interested only in speed with the result that seeding is done sloppily. In some impoverished production teams, owing to weak leadership and lack of common will, the pace of spring farming has been slow. In still other places, because of the good moisture situation this year, a mentality of no need to hurry with production has set in; sowing has not been taken firmly in hand, particularly in some communes and brigades in Chaoyang Prefecture, and the pace of spring farming is slower than in previous years. Right now the evaporation of moisture is great, and unless firm action is taken, there is danger of botching the farming season.

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CHANGE TO DOUBLE CROPPING ADVOCATED

Shenyang LIAONING RIBAO in Chinese 29 Mar 81 p 2

[Article by Cao Xianru [2580 7359 0320], Grains and Oils Department, Provincial Bureau of Agriculture: "The Important Position and Future Prospects of Change to Double Cropping in the Agriculture of Liaoning Province"]

> [Text] Summary of Content. There are two fundamental reasons for vigorously advocating a change to a two-crop system in Liaoning Province. One is to increase the multiple crop index and increase per unit yields to solve the conflict posed by numerous people relative to available land. The other is increased output of rice, flour, and edible oil to satisfy requirements for bettering the life of the masses. The growing of two crops of wheat is imperative. We must realize this trend in development, and beginning with the requirements of society, gradually change to the development of a two-crop system. Development of a two-crop system has a bright future in Liaoning Province. Encouragement to communes and brigades to grow wheat provides basic assurance for development of a two-crop system. In Liaoning Province, solar radiation resources and thermal resources are rather abundant. Natural conditions favor interplanting and multiple cropping. Mass demand for development of change to a two-crop grows ever stronger, and this is the decisive factor in a change of the system to development of two crops.

Reform of the farming system in a change from one harvest a year to two would be a major measure for full utilization of time, space, light and heat resources, and the potential of the soil to increase yields per unit of area. It would also be a major way to increase output of rice, flour and edible fats and oils for the betterment of the people's livelihood. Active change in the system to two crops holds both major immediate significance and long-term historical significance. In a change to a two-crop system in Liaoning Province, the precursor crops include wheat, potatoes, rape, peas, kidney beans and green manure, wheat being the one mostly planted. This article proposes wheat as the precursor crop in a change to a two-crop system, and explores its important position and future prospects for development in agriculture in Liaoning Province.

The Process of Development of Change to a Two-Crop System and Its Superiority

As long ago as the period immediately following Liberation, the masses in the Liao He Basin planted "wheat and beans in rotation" on the river flats to fight floods. Southern Dalian Prefecture still has some wheat multiple cropped with early ripening crops and vegetables. Subsequently, Liaoning Province promoted wheat as a precursor crop in an interplanting multiple crop system, but development was slow. It was not until the 1970's when a change in production conditions occurred that change to a two-crop system in Liaoning Province vaulted into a new stage. The growing of spring wheat spread all over the province from the Liao He Basin, and the growing of winter wheat not only broke out of Dalian Prefecture to travel northward for 200 km, but it also spread rapidly through experimentation and demonstration to Jinzhou and Chaoyang prefectures. In Dalian Prefecture, the two-crop farming method uses mostly winter wheat in multiple cropping with early ripening corn. In other prefectures, overwhelmingly it is interplanting of wheat with corn to increase output. In recent years, owing to the promotion of the multiple cropping of wheat and sunflowers, wheat and beans, and wheat and corn broom millet, the variety of successor crops in the two-crop rotational system has increased, and changes have also occurred in the multiple crop areas. Where formerly Dalian Prefecture multiple-cropped winter wheat with early ripening corn, now it has changed to multiple cropping of wheat with sunflowers for oil. Formerly spring wheat growing areas could not multiple crop, but now they multiple crop with sunflowers for oil. The acreage for early ripening soybeans and early ripening broom corn millet has steadily expanded, and numerous classical examples of bumper harvests from both crops have come to the fore. For the three years from 1978 to 1980, the Chengnan Production Brigade of Dongjiagou Commune in Jin County annually averaged 160 mu of wheat multiple cropped with sunflowers for oil, deriving yields averaging 740 jin per mu of wheat and 292.2 jin of sunflower seeds for a high average output of 1,120.9 jin per mu of wheat and sunflower seeds combined. In 1980, Haicheng County planted 16,000 mu of multiple cropped wheat and beans, and the Houshan Production Brigade in its Maoqi Commune had 5 year average yields of 444.7 jin per mu of wheat, and 323.1 jin per mu of soybeans. The total for the two crops was 767.8 jin per mu. The Shijianfang Commune in Faku County in Liaobei Prefecture multiple cropped spring wheat and early ripening broom corn millet on 10 mu for yields averaging 560 jin per mu of wheat and 400 jin per mu of broom corn millet. Together the two crops averaged yields of 960 jin per mu.

Experience has shown that a change to a two-crop system possesses numerous advantages, most important of which are: ability to increase the multiple cropping index, which is one way to solve Liaoning's conflict of a large population on a relatively small amount of land, and to hasten development of agricultural production; it helps increase both the amount of grain and the amount of edible oil; a rise in output value and an increase in income becomes more evident from the multiple cropping of wheat and sunflowers; it promotes the bringing of all farmland under irrigation, the garden-style cultivation of farmland, and mechanization, making possible realization of consistently high output and a quickening of the pace of agricultural modernization; it is able to improve life, and the addition during the summer season of a "wheat harvest", has long range significance.

Possibility of a Revised Two-Crop System and Its Development Prospects

A two-crop system for the growing of wheat is imperative. We must realize this inevitable trend and, proceeding from the needs of society, gradually develop a change in the system to two crops. But is it possible for Liaoning Province to change to a two-crop system, and is there any future for it? The answer is affirmative.

(1) A policy of encouragement to communes and brigades to plant wheat provides the fundamental assurance for development of a two-crop system. In order to satisfy the needs of the masses of commune members for a better life, the province might stipulate that beginning in 1981 the state will impose no further requisition purchase quotas to those production teams that grew wheat, and that production teams could voluntarily sell wheat to the state, all of it at the premium procurement price paid for purchases in excess of quota. At the same time, production teams that did not plant wheat would have the annually provided holiday flour cut from 7 jin to 4 jin. These three measures would be part of a whole, the object being to encourage commune members to develop wheat production. This policy would be heartily welcomed by the masses and would arouse their initiative to promote development a change to the two-crop system.

(2) Liaoning Province has fairly copius solar radiation resources and thermal resources; natural conditions favor interplanting for multiple cropping. In terms of solar radiation resources, in South China Guangzhou's quantity of radiation totals 113.2 kilocalories per square cm, while at Shenyang in Liaoning it is 121.8 kilocalories and 121.4 kilocalories in Dalian, both higher than in Guangzhou. In terms of thermal resources, in numerous places to the south and to the west of Shenyang in Liaoning Province, accumulated temperatures equal to or greater than 10 degrees amount to from 3,200 to 3,500 degrees. Planting of a single crop requires from 2,700 to 2,900 degrees, so from 500 to 600 degrees remains unused. Meanwhile, multiple cropping of winter wheat and sunflowers for oil requires 3,400 degrees (in addition to the 600 or so degrees required prior to winter. The same applies hereinafter), and multiple cropping of spring wheat with sunflowers for oil requires 3,580 degrees. Multiple cropping of winter wheat with early ripening soybeans requires 3,230 degrees, and multiple cropped spring wheat and early ripening soybeans requires 3,400 degrees, using accumulated temperatures of from 330 degrees to 680 degrees more than for a single crop. With two crops, it is possible to rush plant in the early part of the season and stagger the late season, i.e. use the accumulated temperatures of early spring and late fall while also fully utilizing the growing season, changing from having one crop grow for only about 130 days to two crops growing simultaneously, one for 180 days and the other for 120 days. This situation demonstrates that climatic conditions in Liaoning Province are suitable for interplanting multiple cropping, and interplanting multiple cropping can fully use time, space, solar and thermal resources, and the potential of the land, thereby achieving the objective of increased output.

(3) Demands by the masses for a change to development of two crops grows ever stronger. Now, as a result of the classic exemplary effects of "sunflowers as a follow-on crop for wheat to have flour, oil and money", and the propagandization

and spread of experiences in increasing output through a change to a two-crop system, the masses have come to realize that change to a two-crop system is well worth doing. This is a decisive element that has developed for a change to a two-crop system in Liaoning Province.

Problems in Changing to a Two-Crop System and Prospects for Solution

In the communes and brigades in Liaoning Province that have done a good job of changing to a two-crop system, the acreage has steadily expanded and benefits have more and more increased. In terms of the entire province, however, since the wheat acreage has decreased year by year, the two-crop acreage has also more and more decreased. Consequently, it is necessary to analyze the reasons for the drop in wheat output and to study existing problems to find a solution before it will be possible to give impetus to development of a two-crop system.

(1) Solution to the mental conception problem. Some people suppose that the growing of two crops entails risks while the growing of "two kinds of crops other than wheat and rice" is safe; thus, there should be no double cropping when the "two kinds of crops" play such an important role in food grain output in Liaoning Province. However, the needs of the people's livelihood are diverse, and the crop structure cannot be a unitary one. The guiding mentality in our development of the intercropping of corn with wheat is to harvest a wheat crop on top of assured steady increases in output of corn, which if done properly would be sure to yield more than a single crop would. In double cropping, though it is true and some outputs would not be as great as from a single crop; nevertheless, one cannot pursue quantity of output alone without considering economic income and quality of product. A two-crop economy's earning are higher than a one-crop economy's, as has been previously explained. For a look at quality, take the case of the Xihai Farm in Gai County where two crops averaged yields of 797.7 jin per mu (with wheat yields of 564.7 jin and sunflower yields of 233 jin). The amount of heat energy stored in the two crops is 10.7 percent more than in the same amount of corn; the protein content is equivalent to 1,443 jin of corn, and the fat content is equivalent to than found in 2,020 jin of corn. It may be seen that one crop is in no way the equal of two crops. Therefore, it is necessary to widerangingly and throughgoingly propagandize the superiority of the policy of growing wheat and change to a two-crop system to eliminate mental impediments.

(2) Problems in doing a good job of capital construction of farmlands. Capital construction of farmlands not being all that it could be is a main reason why wheat outputs in Liaoning Province are low and the wheat acreage has declined. The total quantity of water consumed per mu of wheat should be from 400 to 600 mm, but during the growing season for wheat in Liaoning Province only 150 to 240 mm of rain falls, so between 250 and 350 mm are lacking. Artificial irrigation becomes extremely important. Therefore, henceforth it will be necessary to concentrate on genuine efforts to level the land, increase soil fertility and incre[illegible] at field water conservancy projects, integrating field water conservation facilities and the field ditch system to create conditions for changing the system to two crops.

(3) Self-reliance is needed to solve seed problems. In order to improve seed quality, communes and brigades should establish seed bases and do a good job of seed purification and rejuvenation. A good job is also necessary in matching up farm equipment and machinery for "double improvements" and "double suitability" in farm machines and farm techniques, i.e. improvements in farm machines to make them suited to the requirements of interplanting, and improvements in interplanting farming methods to make them suitable for mechanized operations.

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BRIEFS

NEW VEGETABLE PESTICIDE--The Haicheng County Pesticide Plant has successfully trial-produced a non-toxic miscible pesticide powder, aluminum ethyl phosphide. This kind of pesticide is unknown in Northeast China. It has been compounded from ethanol, phosphorous, and aluminum plus clay, and is remarkably effective against yellow withering, late blight, and downy mildew on cucumbers, tomatoes, and cabbage. [Text] [Shenyang LIAONING RIBAO in Chinese 4 May 81 p 2] 9432

HONEY PROCUREMENT PRICE--The procurement price for Liaoning honey has floated downward by 50 percent, with standard first grade 40 percent honey being readjusted from the former 1.10 yuan per jin to 0.93 yuan per jin. In order to encourage output of highly concentrated honey, the price spread for different concentrations has been suitably enlarged. Using 40 percent as the standard, for each percent per jin of increase, the price increased by 0.10 yuan. Except for locust and sweet clover honey, the starting point for honey procurement for flower honeys has been changed to 38 percent. Following readjustments in the procurement price for honey and the price spread for different concentrations, commensurate adjustment occurred in the transfer, wholesale, and retail prices in a spirit of thin profit margins on large volume. [Text] [Shenyang LIAONING RIBAO in Chinese 5 May 1981 p 2] 9432

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TRANSPLANTING OF YAMS UNDERTAKEN IN DROUGHT CONDITIONS

Jinan DAZHONG RIBAO in Chinese 27 Apr 81 p 1

[Article: "More Than 70 Percent of Yam Seedlings Transplanted in Taian Prefecture. System of Responsibility Linking Output to Workers Shows Might in Fighting Drought"]

[Excerpt] Taian Prefecture's promotion of a system of responsibility linking output to labor has given vigorous impetus to the fight against drought and spring sowing. As of the 23rd of this month, 700,000 mu of the provinces almost 1 million mu of yam seedlings, or more than 70 percent, had been transplanted with a speed and a quality greatly surpassing that of former years.

This year Taian Prefecture has had a steady drought. Between January and mid-April, the prefecture's rainfall averaged only 28 millimeters, more than 40 millimeters less than that for the same period last year. Many rivers have ceased to flow; the underground water table has generally declined, and water impounded in reservoirs and ponds is 11.2 million cubic meters less than during the same period last year. Such a drought has not been seen for many a year. Most of the almost 1 million mu of yams the prefecture planned to plant this year were for hilly regions lacking water where transplanting difficulties are very great. In order to triumph over the drought and assure timely transplanting of the yams, the Prefecture CCP Committee and administrative offices of the government organized forces for representative investigation and promotion throughout the prefecture of a system of responsibility linking output to workers. According to incomplete statistics, the sweet potato acreage for which a system of responsibility linking output to the workers has been instituted amounts to more than 80 percent of the total acreage.

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DIVERSIFICATION EMPHASIZED AS MEANS TO SOAK UP SURPLUS LABOR

Jinan DAZHONG RIBAO in Chinese 16 Apr 81 p 1

[Article: "Strengthen Leadership, Adapt General Methods to Local Situations, and Vigorously Develop Diversification"]

[Excerpts] One fundamental characteristic of China is small land areas and bountiful natural resources; another is large population and backward technology. These two characteristics are especially prominent in Shandong Province. This has determined that we can neither depend solely on the slightly more than 1 mu per capita of cultivated land, but must open wide other avenues of opportunity in all around diversification, and that we cannot ignore grain production. Shandong Province has a rural population numbering more than 65 million, which is more than 90 percent of its total population. With the promotion of various forms of a system of responsibility, a general 30 percent or so of the workforce has become surplus, and in some places this figure reaches even 40 or 50 percent. The only way to provide for this workforce is development of diversification. One way to do this is to march on barren mountains and unused beaches to develop natural resources there. A second way is development of labor-intensive handicraft industries and cottage sideline occupations. A third way is to combine the building of small cities and towns, placing emphasis on some economically collective service industries responsible for their own profits and losses. This is the only way in which people can make the most of their talents, the soil can make the most of its fertility, materials can be put to their greatest use, and the broad masses of commune members can each have a role to play. Similarly, because of the large population relative to the amount of cultivated land, food to eat is a large problem not to be lightly ignored. Under any and all circumstances, no relaxation can take place in food production. Development of diversification, including economic crops, must be founded in steady year by year increases in grain output for self-sufficiency in grain within the province. The former lopsided emphasis on grain as the key link, which emphasized grain to the exlusion of everything else, did not proceed from the two fundamental characteristics of Shandong Province. And if in the readjustment of the internal structure of agriculture and in the process of development of greater diversification grain production is treated lightly, that too will not be in accordance with the characteristics of Shandong Province.

Vigorous development of diversification must take full advantage of the initiative of the collective and of individuals. Sole emphasis on collective initiative and failure to take advantage of individual initiative makes a mockery of collective initiative. On the other hand, to have only individual initiative with no heed to bringing the collective initiative into play, and without the collective economy to lead and channel the direction of development and the area of circulation, individual initiative cannot play a role either, or may even go astray. Shandong Pronvince has a territory of 150,000 square kilometers, a seacoast more than 3,000 kilometers long, barren mountains, unused beaches, alkaline wastelands, and grasslands amounting to more than 40 million mu, and lake, reservoir, and pond water surfaces amounting to more than 4.5 million mu. Resources are abundant, and conditions for development of diversification are very good. Since the CCP Third Plenary Session we have awakened and have gradually come to pay attention to development of diversification. During the 3 year period from 1978 to 1980, gross income from diversification increased 1.5 fold over the 7 year period from 1971 to 1977. In terms of the entire province, however, we still lack comprehensive planning and calculations. Less than half of the barren mountains, unused beaches, and wastelands have been developed; only about one-tenth of shallow coastal areas have been put to use, and pond surfaces remain virtually unused. Many doors to diversification remain to be opened.

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SPECIALIZED WORK CONTRACTS PROMOTED IN YANTAI PREFECTURE

Jinan DAZHONG RIBAO in Chinese 3 May 81 p 1

[Article by Xinhuashe Correspondent, Chen Yuming [7115 7183 2494]: "Yantai Prefecture Forestry, Animal Husbandry, Sideline, and Fishery Industries All Promote Specialized Work Contracts; Increases Speed of Development of Diversification and Increases Both Collective and Commune Member Earnings"]

[Text] Even while perfecting its system of responsibility for farmlands production, Yantai Prefecture in Shandong Province has promoted specialized work contracts across the board in forestry, animal husbandry, sideline occupations, and fisheries in a system of responsibility linking calculation of remuneration to output. Now, the 3.46 million rural labor force in this prefecture plows, embroiders, looks after fruit orchards, or raises shrimp, each having a role to play and each doing what he or she is best at. The labor productivity rate is steadily rising, and agriculture, forestry, animal husbandry, sideline, and fishery industries are thriving.

This general promotion of specialized work contracts as part of a system of responsibility linking calculation of remuneration to output has hastened the speed of diversification. In 1980, collective earnings from diversification in Yantai Prefecture was 26.2 percent higher than in 1979, and the extent of increase vastly exceeded that of previous years. The first quarter of this year again shows earnings 9.34 million yuan higher than for the same period last year.

Institution of specialized work contracts has resulted in a fairly stable specialized work corps in forestry, animal husbandry, sideline and fishery industries. Yantai Prefecture with more than 12 million mu of cultivated land, more than 6 million mu of mountains and beaches, and a more than 1,300 kilometer long coastline, is Shandong Province's principal grain producing area where conditions for development of diversification are very superior. However, formerly a large amount of the workforce was tied up in agriculture, so despite the very good conditions for development of diversification, a sufficient workforce was lacking. That part of the workforce that did engage in diversification worked in a desultory fashion. Now, however, all locales do overall planning taking all factors into consideration in both farmland production and diversification. In the distribution of the workforce, attention is given first to real needs for field production and the usual annually required workforce retained for it. Next, local natural resources are taken into accounting in providing for personnel specialized in forestry, animal husbandry, sideline industries, and fisheries with work contracts being awarded industry by industry, calculation of remuneration linked to output, awards given for overfulfillment of quotas and penalties meted out for failure to meet quotas. Except for the busy seasons when the three summer jobs [planting, harvesting, and field management] and the three autumn jobs [harvesting, plowing, and sowing] are done, these people are generally involved for about 10 months of every year in specialized production. In this way, even while assuring sufficient labor for work in the fields, the number of people engaged in forestry, animal husbandry, sideline occupations, and fisheries is greatly increased and is fairly stable. Last year, this specialized corps numbered 1.6 million, or 46 percent of the total rural workforce. Earnings from diversification as a proportion of gross collective earnings stood at 47.5 percent.

In instituting specialized work contracts for forestry, animal husbandry, sideline occupations, and fisheries, Yantai Prefecture has kept its eyes on arousal of enthusiasm in all quarters. Where formerly most of the diversification in this prefecture was centralized in brigades, now anything that production teams can do is organized and contracted for them to do. Whatever is suitable for centralized production is done by a specialized team or a specialized unit. Whatever is suitable for dispersed production is organized for specialized households or specialized workers. Since last winter, in particular, great development has taken place in specialized households and specialized workers. As of the end of last year, 2.28 million rabbits were being raised throughout the prefecture. After the raising of rabbits by specialized households was advocated, for the first 3 months of this year, the number of rabbits being raised increased by more than 700,000.

Yantai Prefecture has steadily summarized experiences to solve new conflicts that have arisen following specialized work contracts for forestry, animal husbandry, sideline occupations, and fisheries. For example, after specialized work contracts were instituted in fruit production, the major diversified item in this prefecture, some contracting units concerned themselves only with increases in output for the current year, ignoring the need to nurture trees, and the care of young trees. Now, however, numerous communes and brigades have continuous production projects for fruit orchards and have instituted systems of responsibility whereby specific people contract for several years time. They have caused the specialists to properly handle the relationship between increased harvests during the current year and long range build-up so that production develops steadily.

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BRIEFS

WENZHOU EARLY RICE TRANSPLANTING--Numerous villages in Wenzhou Prefecture have already begun spring plowing and are very busy. With the exception of Dongtou County, counties throughout the prefecture began transplanting early rice one after another. According to statistics, more than 14,000 mu had been transplanted by the 16th [of April]. [Text] [Hangzhou ZHEJIANG RIBAO in Chinese 19 Apr 81 p 1]

COMPLETION OF COTTON PLANTING--By 30 April the task of planting 1.39 million mu of cotton was already completed successfully. This year, every area in Zhejiang planted cotton in accordance with the state plan and such counties as Xiaoshan, Ninghai, Shangyu, Yuhang, Xiangshan, and Putuo exceeded the state plan. In addition, many communes and brigades in the cotton areas made use of odd pieces of land to expand cotton planting. [Text] [Hangzhou ZHEJIANG RIBAO in Chinese 6 May 81 p 1]

BUMPER RAPESEED HARVEST--On the foundation of three successive bumper harvests, our country has achieved another bumper summer harvest of rapeseed. According to statistics of the 14 major rapeseed producing provinces and municipalities, the estimated total output of summer-harvested rapeseed will be more than 57 million dan, a greater than 30 percent increase in production over that of 1980, again setting a new record for rapeseed production. [Text] [Hangzhou ZHEJIANG RIBAO in Chinese 24 May 81 p 1]

AGRICULTURAL MACHINERY RESOURCES--At present, Zhejiang province has more than two billion yuan in fixed assets in agricultural machinery, more than seven million horsepower of motive power for agricultural use, more than one million agricultural machinery sets/parts and 450,000 operators and repairpersons of every type agricultural machine. [Excerpt] [Hangzhou ZHEJIANG RIBAO in Chinese 11 May 81 p 1]

AGRICULTURAL STATISTICS--Gross value of agricultural output for Zhejiang Province in 1980 was 8.5 billion yuan, an increase of 3.6 percent over last year. As a result of natural disasters and decreased area, total grain output, although 11.4 percent less than last year, still approached the 1978 bumper harvest level. The majority of economic crops increased as compared with 1979. Cotton increased 15.9 percent, rapeseed increased 4 percent, tea leaves increased 15.2 percent, and silkworm cocoons increased 12.6 percent. The number of pigs raised increased slightly. There was great development in the rabbit [industry]. During the year, 2.06 million mu was afforested and more than 48 million trees were planted on odd pieces of land. In accordance with the principle of protecting natural resources, some development in fishery production was achieved. In this year, fresh water fish production surpassed the highest level recorded. The value of production of commune and brigade industries and the income from other enterprises was 4.5 billion yuan, an increase of 40 percent. [Excerpt] [Hangzhou ZHEJIANG RIBAO in Chinese 23 May 81 p 1]

STATISTICS--One of the important goals for the 1981 PRC economic plan will be a gross value of agricultural output of 8.92 billion yuan, a 5 percent increase over last year. [Excerpt] [Hangzhou ZHEJIANG RIBAO in Chinese 24 May 81 p 2]

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